JUNE 11, 1955

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MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING •

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

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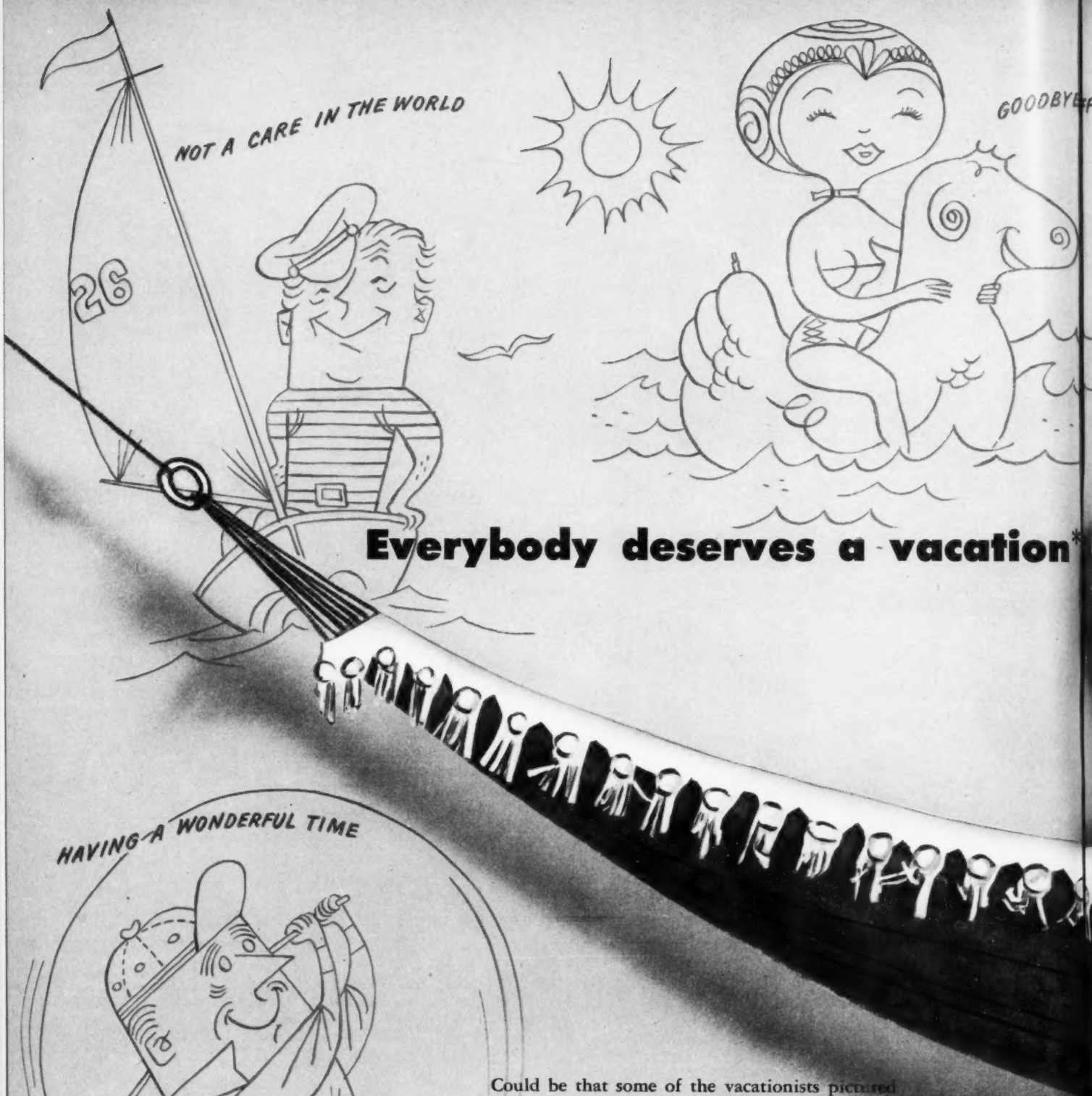

Everybody deserves a vacation*

Could be that some of the vacationists pictured here are Stromberg-Carlson customers—*completely* relaxed in the knowledge that the equipment they left behind them will function faithfully every moment they're away.

***including our own workers—who'll be off from July 1st to July 18th.**

Branch Offices will be open during this period—and of course a skeleton force at the factory.

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Sales Offices: Atlanta 3, Chicago 6, Kansas City 8, Rochester 3, San Francisco 3.
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A MILLION MILES FROM THE JOB
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Place your order now with the Kellogg Branch Warehouse closest to you to cover your monthly requirements for either K-500 Series or 1000 Series Telephones. Specify the number of telephones to be delivered in accordance with your requirements.

Every month, right on schedule, the type and quantity of telephones you have specified will be delivered from your Kellogg Branch Warehouse.

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Lower price per telephone. By determining your approximate monthly telephone requirements and placing your order now, you obtain the benefit of the best quantity prices.

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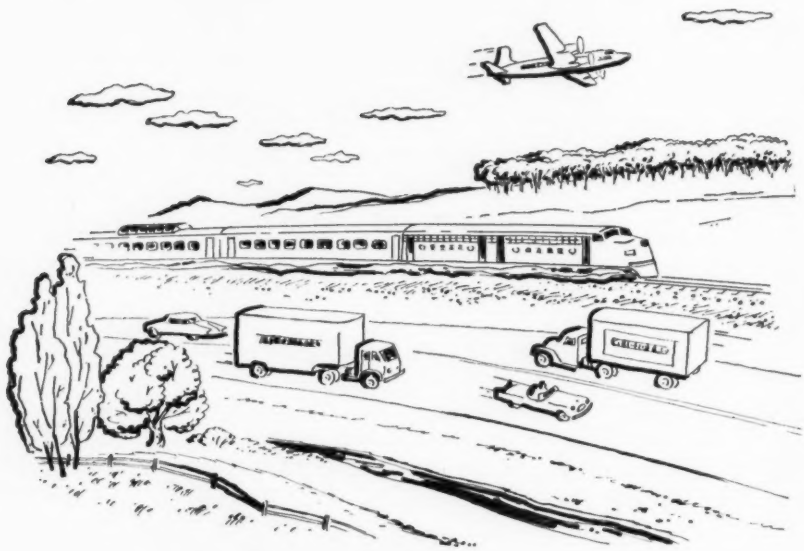

• Kellogg's six conveniently located warehouses and more than 100 supplier distribution points throughout the United States assure you the fastest, and most economical delivery of guaranteed, factory-tested line supplies.

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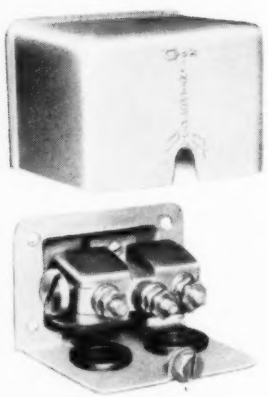
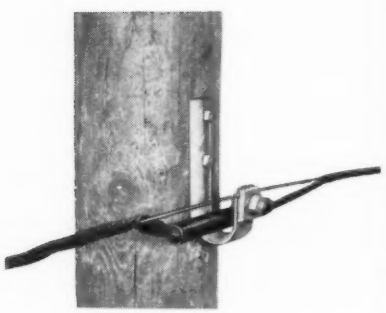


The new Cook Interceptor is a fuseless, carbon to carbon arrester which grounds power cross surges and lightning. Mini-Gap arresters are mounted in a moisture resistant and dirt-proof receptacle — no grounds due to dirt or insects. A product of COOK ELECTRIC COMPANY.



For use with self-supporting rural telephone cable. The Wire Pole Bracket is attached to pole with two 3/8" x 4" FD lags on straight runs and angles less than 35°. For angles of more than 35° —use 3/8" carriage bolt in lower hole. JOSLYN MFG. AND SUPPLY CO.

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Kansas City 1, Missouri
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410 N. Syndicate Avenue
St. Paul 4, Minnesota
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1515 Turtle Creek Blvd.
Dallas 2, Texas
Prospect 5191

1663 Mission Street
San Francisco 3, California
Market 1-6011

1555 West Fourth Street
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Mansfield 7-2816

KELLOGG Branch Offices:

406 S. Main Street
Los Angeles 13, Calif.

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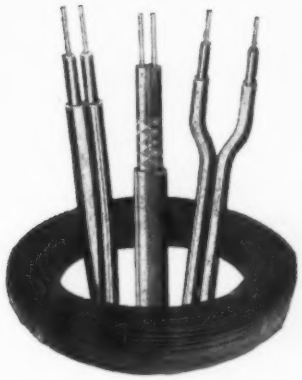
Long Service Life and Low Plant Costs go hand-in-hand with the installation of ENDURPRENE — The Neoprene Drop Wire available in both Copperweld and Bronze. This flexible and easy to handle wire is made by GENERAL INSULATED WIRE WORKS, INC.



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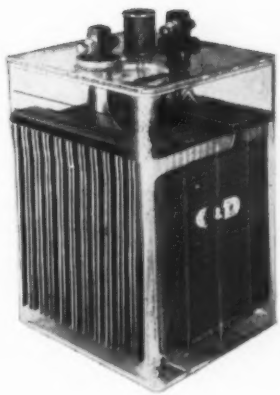
Extra-Long Life! — The suspended and supported plate construction is an exclusive feature of C&D BATTERIES. Choose C&D's PlastiCal (lead-calcium grids) for life expectancy of 25 years . . . for 14 years expectancy, specify PlastiCell (high tensile lead alloy grids).



for Line Supplies

Exchange Area Cable for aerial and duct use. TELECABLE* has polyethylene insulation and sheath, excellent transmission qualities and resistance to weathering. 202 Pair and smaller. Approved by REA. *TELECABLE is a trade-mark of WHITNEY-BLAKE CO.

For Decimonic Ringing Systems—The K-5 Sub-Cycle supplies permanently accurate ringing frequencies and closely regulated ringing voltages. Requires little power to operate and minimum maintenance. Made by LORAIN PRODUCTS CORPORATION.

Save Three Ways . . . on materials, manhours and maintenance with INDIANA STEEL & WIRE COMPANY'S Crapo HTL-85 and HTL-135 Line Wire. Galvanized by the famous Crapo Galvanizing process, protected with heavy, ductile coating of zinc.

FLASHES AND PLUGS

OPERATION HAWKSHAW, KING SIZE. The man with the biggest single telephone bill in Hollywood—more than $2,000 a month—calls numbers all over the world each day inviting people to come to television's biggest surprise party, relates a Hollywood columnist.

Don Malmberg has to round up all those relatives and friends who surprise the "star" on "This Is Your Life."

Malmberg has tracked them down by way of tom-toms in the African jungle and officers of the highway patrol. He makes an average of 200 calls per program.

By now Malmberg knows many of the overseas telephone operators and he calls Africa as casually as you'd telephone a drugstore.

Recently, on research into Victor McLaglen's past, he had to contact one brother who was fighting the Mau Maus in Africa and another who was on a safari. "We got native runners to track them down," he said.

Another tough job was finding Martha Raye's husband, when he was driving from New York to Florida. Malmberg got the highway patrol to issue a four-state alarm and an officer flagged down the surprised Eddie Davis.

Recently the subject of the program was an escapee from Devils Island, Renee Benoit. Malmberg found a Trinidad newspaperman who had helped Benoit escape in 1937. A man Benoit knew only as "Jungle Jim" of Panama turned up when Malmberg on a chance called the main hotel in the Central American city.

"The only person we couldn't find was a Salvation Army man who was on Devil's Island in 1937. I put in 15 calls to London and Scotland and finally heard he died in Paris," Malmberg said.

For a recent program about a Japanese minister who lived through the Hiroshima bombing, Malmberg called in the local Japanese consul to talk to the man's family in Japan. The family flew to Hollywood on one day's notice.

"I work on some shows weeks in advance but usually I start one week before the show," he said. "If I can't dig up the people by Thursday we get a new subject.

"I often call drugstores, fire stations and police in small towns when I'm looking for somebody."

• • •

PARENTAL INTERPRETATION. Two University of Nebraska students said on June 1 they were surprised when Sir Winston Churchill took time to talk to them on the telephone.

Gene Spence, 21, and Mile Shugrue, 20, both of Lincoln, decided to make the call on May 31 during a discussion of world politics. They waited four hours after placing the call before Churchill was connected with them from London.

Spence and Shugrue told Churchill he is "the greatest statesman of our day." The former Prime Minister said, "It's mighty fine the young people of our age have that much interest in world affairs."

Spence's mother, Mrs. G. P. Spence, said Churchill probably was referring to the cost of the call—$15.40.

CIRCULATION

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BRAND

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KIT INCLUDES all necessary materials for this revolutionary non-technical insulating method that gives longer-lasting, trouble-free splices on plastic and lead sheathed cable. Less time, at less cost.

Cut-away shows how spliced conductors are "bottled-up"
ALUMINUM OUTER CHAMBER
ALUMINUM INNER CHAMBER
HARDENED "SCOTCHCAST" RESIN
RIP WIRES AFFORD EASY RE-ENTRY TO SPLICE AREA

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LET'S MAKE IT MUCH EASIER TO OPERATE!
WHY NOT HAVE KEYS THAT OPERATE ONLY ONE WAY?
WHY — IT COULD LOOK LIKE A MODERN BUSINESS MACHINE!
I THINK WE CAN MAKE A CORDLESS BOARD THAT WILL BE MUCH LIGHTER!

. . . and HERE YOU

Here indeed, in this beautiful Leich Cordless, is the new look in PBX Switchboards.

Only 7½ inches high and 16 inches long, this Leich Cordless gives you 20 lines, 5 trunks and 5 connecting circuits. It looks like a modern business machine and fits in very nicely in modern offices.

Operation is made easier by the new Leich one-way colored keys. Even girls who never worked a switchboard before can learn to give fast, efficient service with this unique new arrangement. It provides every modern operating feature.

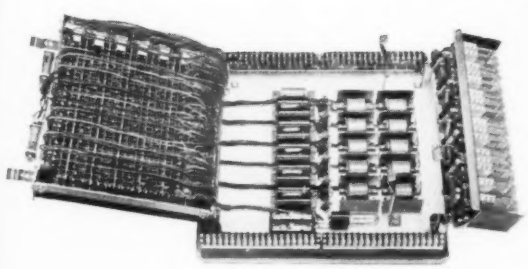
This new Leich Cordless is designed to give you more dependable performance too. The new, positive-action keys are extremely simple in design and operation. The new Leich built-in multiple eliminates 52 per cent of the contacts and 64 per cent of the soldered joints that were necessary on old style Cordless boards.

Find out right now how you can use the new Leich Cordless to build business revenue in your company. Write today for catalog and prices.

LEIC

LET'S ELIMINATE THAT MAZE OF WIRES ON THE INSIDE!

UARE !



Removing cover makes all the parts instantly accessible. No crowded maze of wires. There's less to go wrong on this new Leich Cordless. All parts are made of the highest grade materials. Precious metal contact surfaces are used on all the keys.

the most practical, easy-to-use Cordless Switchboard you've ever seen.

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GENERAL SYSTEM

Here's Proof of Performance...

Pressure-creosoting increases pole life for Consumers Power Company

• In 1931, Consumers Power Company, serving 64 Michigan counties, stopped the use of untreated and butt-treated poles in its rural distribution systems in favor of pressure-creosoted poles. Today approximately two-thirds of the company's poles in electric distribution lines are pressure treated, 80% of those being full length pressure-creosoted Southern Yellow Pine.

The average cedar pole, used until 1931, had a normal life expectancy of 23 to 25 years at the most. The life expectancy excluding losses for other than natural causes, of the pressure-creosoted Southern Yellow Pine poles being purchased today is probably upwards of 40 years, according to George A. Clark, Electric Distribution Supervisor.

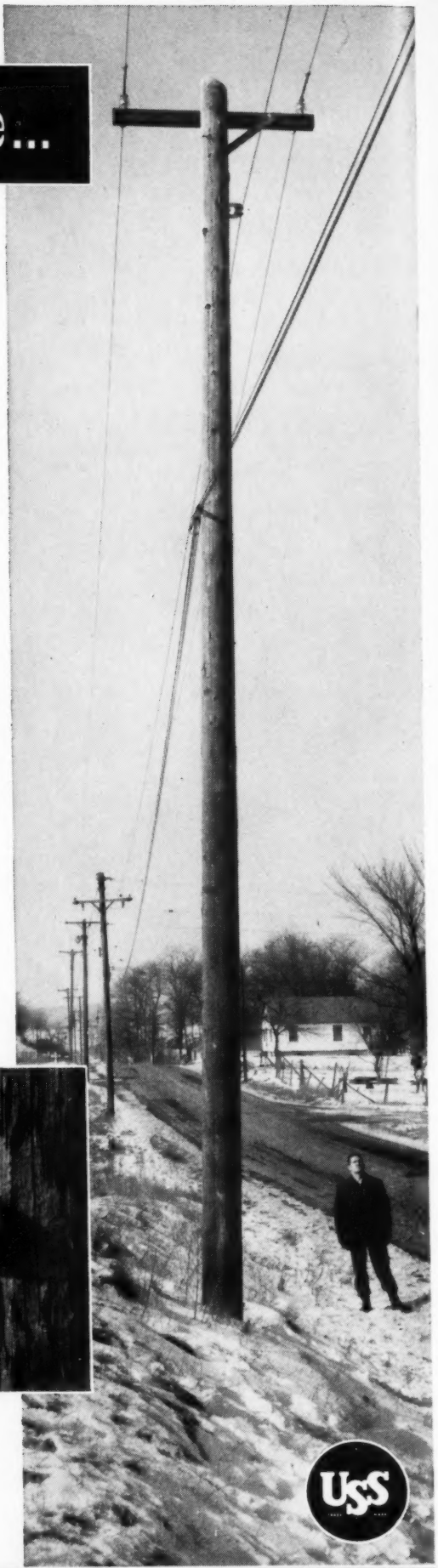
Pressure-creosoting, according to Mr. Clark, gives positive penetration averaging over 80% of the sapwood and with the use of modern vacuum processes after treatment, today's poles are dryer and cleaner.

In the company's scheduled maintenance program, its full-length pressure-treated poles are not to be given a boring inspection until they have been in service 25 years.

Long life and cleanliness go hand in hand when you use pressure-creosoted poles. Especially if USS Creosote is used. If you would like more information, contact the nearest Coal Chemical sales office listed below or write directly to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

You can obtain clean pressure-creosoted poles upon specification without sacrificing pole service life.

Close-up, at right, of a Consumers Power Pole, showing 1937 dating nail.



Pressure-creosoted poles in a rural line of Consumers Power Company, Jackson, Mich.

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complete line...for Indoor and Outdoor use

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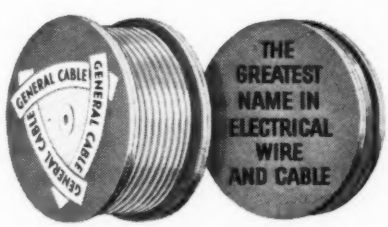

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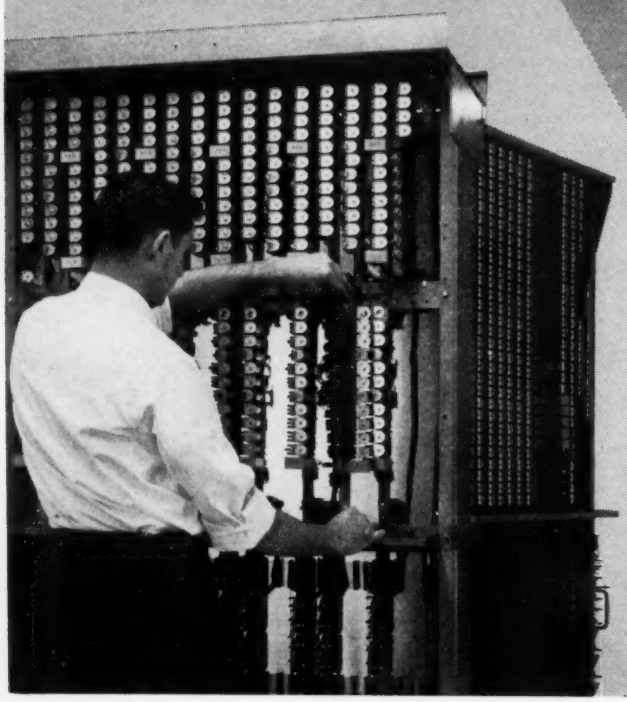
Complete line of cord or cordless toll boards, attendant boards, wire-chief desks, test panels, battery chargers and switchboard accessories.



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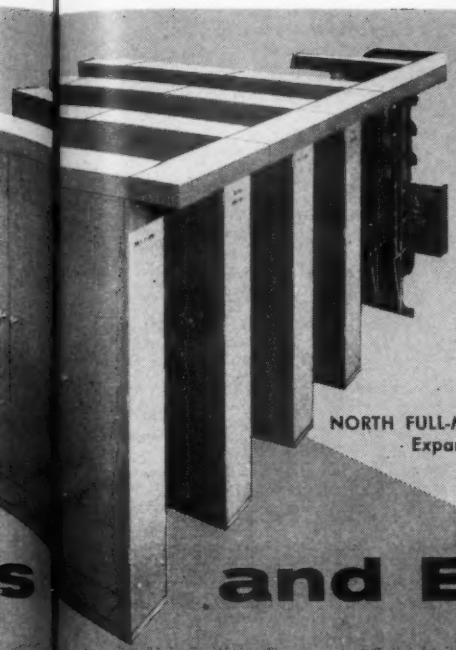
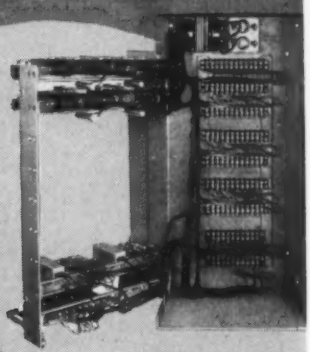


NORTH FULL-MULTIPLE PABX
Expandable from 30 to more than 1000 lines.

Internal Communications

PABX equipment of all sizes, for all types of service, from six lines to hundreds. PUSHBUTTON PABX — Expandable to six CO trunks and twenty stations. All stations equipped to originate, hold and transfer calls.

Pushbutton relay unit can be easily installed in any out-of-the-way location.



s and Equipment

Every North All-Relay exchange, whether it is central office equipment with 100 or 10,000 lines, an office pushbutton system or a large industrial PABX, operates entirely by relays for reliable maintenance-free service. North relays are made with self-protecting coils—self-cleaning precious metal double contacts. Minimum maintenance inspection at widely spaced intervals is sufficient to keep this equipment constantly in action. For the very best equipment . . . always specify NORTH.

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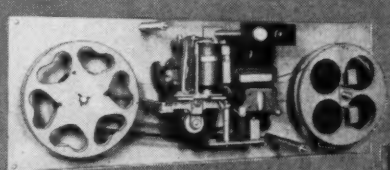

1. RECORDER UNIT registers all information necessary for billing of toll calls on a tape which becomes a permanent record. Record data includes calling exchange, called exchange, calling number, called number, month, date, time, and minutes talked.
2. ANALYZER UNIT "reads" the tape and computes the charge from preset base and overtime rates. May be connected to modern business machines for further automatic accounting procedures.
3. "TELETYPE" PRINTER in the analyzer unit prints the information and cuts the tickets to standard size.

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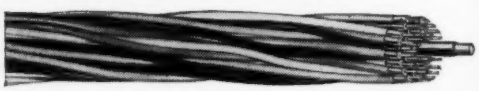
TELEPRENE ®
NEOPRENE JACKETED DROP WIRE

The famous Whitney Blake wire that set a new high for service life. Available in twisted pair, parallel and twin constructions, with bronze or Copperweld conductors.

DISTRIBUTION WIRE
Available with 6, 11 or 16 Pair



Each individual conductor has No. 19 AWG soft copper conductors, polyethylene insulation and polyvinyl chloride jacket, completely color coded. Paired conductors are twisted around polyethylene-covered, high strength steel core. Excellent electrical qualities — easy to install — no cross arms needed. These wires offer the most economical temporary method of extending service in growing areas.

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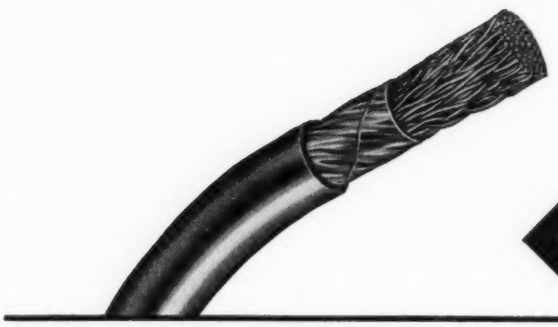

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by FRANCIS X. WELCH WASHINGTON EDITOR

Controversy over original cost vs. current value rate base in New York Telephone Co. case of particular interest to telephone industry. Welch disagrees with Buffalo professor on cost-of-money rate base theory. N. C. Supreme Court rules against commission on Carolina T&T stock price.

FOR MORE than a year, this department has stressed the importance of the telephone rate case which has been going on in New York State, as being likely to provide a pivotal test in the postwar inflationary period of rate-making. It is for two reasons: First, it is probably the largest single rate increase request in the history of public utility regulation in the United States—$68,850,000. Second, in view of the fact that a number of other important states have deserted the list of so-called "original cost" rate base states, in the light of the postwar inflation, there was a possibility that New York might swing the psychological center of gravity that would mark a real trend back towards the doctrine of Smythe *v.* Ames, or something like it.

In this connection, it will be recalled that the New York State courts have not had an opportunity to review this basic issue in a major rate case in recent years.

Now, the appellate division of the New York Supreme Court has made its decision. And so far, the answer is in favor of the New York Telephone Co. to the extent that the New York commission has been instructed to receive and consider evidence of reproduction cost in passing on the rate increase application.

But, it is far too soon to reach any conclusions about this test case for two reasons: First, the decision of the appellate division (by a closely divided vote of 3 to 2) can be, and is likely to be, appealed to the New York Court of Appeals, which is the state's court of last resort. Second, New York regulatory statutes are peculiar in that the telephone law uses the word "value," while the laws regulating gas, electric, and railroad use the words "capital actually expended."

So it could be that if the appellate division decision stands, the New York legislature, in the interest of consistency or uniformity, might be disposed to change the law. And it might just as easily change the telephone law to conform with the other statutes, instead of changing the other statutes to conform with the telephone law.

In any event, the appellate division majority has ruled that the New York Public Service Commission was in error when it refused to accept evidence of current value with respect to New York Telephone Co. properties before denying any part of the proposed $68,850,000-a-year rate increase.

The main basis for the majority opinion was the wording of a 1910 statute, which directs the New York commission to regulate telephone rates "with due regard, among other things, to a reasonable average return upon the *value* of property actually used in the public service."

The appellate division majority felt that this language required the commission to give consideration to current value as distinguished from original cost.

Dissenting justices of the appellate division pointed out that a 1952 condemnation statute instructed the commission to consider "capital actually expended." The dissenting justices were Halpern and Bergan, who considered this as an expression of the most recent intent of the legislature as to the proper measure of value.

But Presiding Justice Foster (joined by Justices Coon and Imrie) believes that there was no connection between the condemnation statute and the rate-making statute.

An appeal will probably be taken by the commission or one of the rate increase protestants to the New York Court of Appeals. State Attorney General Jacob K. Javits said he would seek an amendment to the law in the legislature if the appellate division decision stands.

New York is the sixth and largest state in which court decisions, within the last few years, have reversed state commission rulings adhering to a strict cost basis. The others are Maine, Illinois, North Carolina, Delaware, and Maryland (partially confirming the commission). In other states, such as Ohio, Indiana, and Pennsylvania, some measure of recognition of reproduction cost has long been well settled.

Cost of Money and Rate of Return

In connection with the court's decision in the New York Telephone Case, a very informative and penetrating analysis of the "cost of money" in determining the rate of return allowance by the New York commission, appears in the current (Spring) issue of *The Buffalo Law Review* (Vol. 4, No. 3) by Professor Harold M. Somers, dean of the School of Business Administration, University of Buffalo.

Dean Somers has made about as good a job of exposing certain fakery and failings of the "cost-of-money" theory as the exclusive test of the rate of return as your correspondent has read in many months. And yet, paradoxically, Somers comes up with a proposal to do away with the rate base approach altogether, in favor of what he thinks would be a simplified process of fixing utility rates directly on the cost-of-money requirement.

Without trying to explain this anomaly, a bit of review of Dean Somers' article might be helpful and useful to readers of this department who have rate case problems.

First of all, Somers shows what has actually been going on in the case of some public service commissions who have been using the "cost-of-money" test to determine their allowable rate

of return almost as an exclusive standard.

Somers thinks it is the out-growth of a combination of the inflationary period through which we have been passing since the end of World War II, plus the natural predilection of some commissions to use the convenient and readily ascertainable original cost rate base, as contrasted with the more controversial determination of current value for rate base use.

The Buffalo professor, recalling that the Supreme Court virtually invited the commissions to place emphasis on cost of money because of the language used in the Hope Natural Gas Case (1944), figures that the commissions began to discover in it a sort of escape valve, especially convenient in taking care of the inflationary factor.

In other words, these commissions have actually been retreating from a strict cost basis, by making a little extra allowance for return to take care of what would be needed to keep the investor interested in public utility securities.

Thus, instead of giving consideration to higher prices in valuing the physical plant used in the public service, these commissions have been boosting up, ever so little perhaps, the rate of return (to compensate for inflation), but keeping it ostensibly keyed to an original cost rate base.

In this observer's opinion, this little exercise in mathematical expediency might be workable enough to take care of a junior sized inflation, but it would still be unrealistic in case of a continued or galloping type of inflation. Where, for example, inflation has occurred only in the order of about 25 per cent, commissions might adjust the return on a cost base from 5.5 per cent to 6.75 per cent without difficulty. But an inflation of over 100 per cent—occurring over a brief measure of five years or so—might require an adjustment of the return to 11 per cent or 12 per cent, which would be bound to encounter stiff political resistance.

Trying to adjust for inflated value in the rate of return, instead of in the rate base, may also be unrealistic for other reasons, as Dean Somers explains.

There is also the hard fact that using the rate base as a starting point in rate-fixing in this manner involves a sort of vicious circle of regulatory reasoning. The courts have held, for example, that, in the case of an industry having a regulated rate such as a public utility, the "fair value" of the property is necessarily restricted by the amount of earnings the property can be expected to enjoy.

But if the limit on amount of permis-

REA Approves Telephone Loans in Four States

The U. S. Department of Agriculture on June 1 announced rural telephone loans to borrowers in Mississippi, Maine, Missouri and New Mexico. These loans approved by the Rural Electrification Administration amount to $1,243,000. Details follow:

Bay Springs (Miss.) Telephone Co. on May 20 was allocated $221,000, third loan to this borrower.

The company plans to use this loan, together with funds available from prior loans, to complete the construction authorized on the first section of the system located in Jasper, Jones and Smith counties.

When this portion of the Bay Springs system is completed, it will consist of 478 miles of line furnishing dial telephone service to 1,713 subscribers, of which about 1,400 are now being served.

Automatic central offices will be located at Bay Springs, Big Creek, Old Taylorsville and Soso.

D. L. Fail is president of the Bay Springs company.

* * *

Unity (Me.) Telephone Co. on May 23 received allocation of $294,000 to finance the improvement and extension of rural service in Kennebec, Penobscot and Waldo counties.

The borrower now furnishes magneto service to 795 subscribers over 201 miles of line. With the REA loan, the company plans to add 22 miles of new line and other facilities to bring modern dial service to the existing subscribers and to 109 additional rural families who do not now have telephones.

About 123 miles of existing line will be rebuilt and new dial offices constructed at Albion, Newburg and Unity. When complete, the expanded system will operate 215 miles of line.

E. D. Chase is president and manager of the Unity company.

* * *

Buffalo (Mo.) Telephone Co. on May 23 was approved for a loan of $418,000 to finance improvement and extension of rural service in Dallas and Polk counties.

The borrower is now furnishing common battery and magneto service to 784 subscribers over 121 miles of line. This total includes 277 switchers who now have their own individual lines.

With the REA loan, the company plans to convert the system to automatic operation, rebuild 52 miles of the existing line and add 259 miles of new line.

A new automatic central office building will be constructed at Buffalo, and other facilities added to serve 336 rural families now without telephones. It is anticipated that the switchers will dismantle their own lines and become regular subscribers of the Buffalo company as soon as service is available.

The completed system will consist of 314 miles of line furnishing dial service to a total of 1,120 subscribers.

John J. Gault is president and manager of the Buffalo company.

* * *

Leaco Rural Telephone Cooperative, Inc., Lovington, N. M., allocated $310,000 on May 26; to improve and extend rural telephone service in Lea and Chavez counties.

The borrower is presently furnishing magneto service to 188 subscribers over 30 miles of line. With the REA loan, the cooperative plans a modern dial system which will provide improved service to the existing subscribers and initial service to 449 rural families in the area now without telephones.

A complete new line of 344 miles will be constructed, and automatic central office facilities installed in a new building in Tatum.

Prentice H. Harris is president of the Leaco cooperative.

sible earnings, in turn, must be keyed to a stated rate base, it becomes an almost impossible guessing game trying to set definite rates in the face of two variables, both of which are dependent upon each other.

The Buffalo professor also questioned the sufficiency of the "flight of capital" test in determining the cost of money, in the light of what amount of earnings are required to keep the investors interested. If a utility is to get no higher rates than those barely sufficient to keep the investors from selling out, the industry will inevitably become paralyzed by stagnation.

But ours is a dynamic economy in which the telephone as well as other business must grow and expand. Hence, it is the "inflow of capital"—meaning a test based on the *incentive or inducement* for new capital — rather than keeping capital already invested intact, which should control.

Somers further questioned the encroachment by any state commission upon the discretion of management in arbitrarily determining what should be the proper relationship of debt (bonds) to equity capital (stocks).

A number of commissions have been doing this, indirectly, by assuming a hypothetical cost of capital based on a higher debt structure than a conservative utility management has actually created.

A utility commission must also assume a certain degree of managerial prerogative of decision when it attempts to pass its judgment (as to allowable return) upon a company's dividend policy. (This turns on the question of whether the utility company is liberal or conservative in the amount of earnings paid out in dividends.)

The professor notes, with somewhat guarded cynicism, that the commissions attempt no such usurpation with respect to the amount of *wage increases* which utility management might decide to pay out. In such cases, commissions preserve a strictly "hands off" attitude — leaving management to pay out as much wages as it sees fit.

Why then should the commission attempt a grandstand sort of management as to other internal policy matters (such as debt structure or dividend pay-out) unless it might be because such matters involve a type of decision affecting a much smaller number of people—to wit, investors?

The most interesting criticism made by Dean Somers, in his analysis of current regulatory practice in New York and elsewhere (as to the cost of capital factor in rate-making) deals with its relationship to an actual or physical rate base—whether figured on cost or value.

This has reference to an entirely phony rationalization in which a number of commissions have been indulging, in order to preserve the appearance of using a physical original cost rate base, while actually basing the return allowance on cost of money.

For a concrete example, suppose the commission finds—as it did in the New York Telephone Case—that the cost of money (as related to the company's outstanding capitalization), figured out at a certain over-all percentage, would yield a certain number of dollars. This number of dollars, in turn, amounts to a certain percentage of the original cost rate base. *Ergo*—that percentage becomes the "reasonable rate of return!"

The result is something like deciding in advance how much income tax you can afford to pay the government, and then figuring out the tax return to conform. Dean Somers says of this:

"Here there is a clear admission of the fact that the 'required number of dollars of income' is the figure to be determined and is independent of the base used.

"Another way of saying this is that with any given rate base, the rate of return will be adjusted so as to yield the independently determined 'required number of dollars of income.'

"Since the needed end result, the 'required number of dollars of income' has to be determined independently anyway, why bother with going through the process subsequently of rationalizing that number by setting a rate base and rate of return?"

It is at this point that the Buffalo professor launches into his own novel theory of doing away with the rate base altogether. He proposes the forthright alternative of fixing utility rates *directly* on the cost of capital. And it is at this point that your correspondent must part company, respectfully but firmly, with the learned dean.

It is possible for this observer to admire the subtle and persuasive arguments used by Dean Somers to expose the arbitrary and meaningless uses of the rate base by some commissions in connection with the cost of capital; and, at the same time, to regard the dean's final solution or remedy as something in the nature of a *reductio ad absurdum*.

For surely the net result of what Dean Somers apparently has in mind would be attempting to abdicate all regulatory responsibility by the mechanical process of delegating it to the judgment of the market place — the money market, that is. Commission regulation would seek to become—under such a technique—a mere exercise in accounting computations. The window dressing of hearings, evidence, arguments, and other accoutrements of rate case procedure could be largely dispensed with.

It may be that there is a good bit to be said for such change, purely on the basis of simplification and convenience. But that can hardly be what the various legislatures had in mind when they wrote the regulatory statutes.

As a matter of fact, aside from the legalistic problems of trying to square such a short-cut with the plain language of dozens of regulatory statutes, the adoption of an exclusive cost-of-money approach to the rate-making process would probably not simplify the problem at all.

True, as the dean, himself, says with respect to the use of the return allowances as a vehicle for adjustment for inflation, the number of "variables" (or items to argue about) might *appear* to be reduced. But actually they would all be concentrated in one grand argument about the rate of return.

And if that came to pass, it would soon become apparent, as the Federal Power Commission Chairman Kuykendall has so well stated, that cost of money, alone, simply cannot be the sole or exclusive test of the rate of return.

Other classical factors, especially those having to do with the peculiarities of the particular property would have to be considered as a matter of equity and common sense. And once the door is opened to these other factors, the problem is right back where it started—the only difference being one of financial-economic setting instead of the traditional background of physical valuation.

And so, even if the dean's short-cut were adopted, the judgments of many experts as to future trends, economic cycles and plateaus, and all the rest of the now familiar lingo of the expert witness, would become more important and more involved.

Maybe the financial analysts and investment economic experts have approached more nearly an exact science than the valuation engineers, even with their modern gadgets of price indexing. But you could get a lot of argument on that score from any experienced commissioner or utility executive.

In fact, a good deal of the so-called "expertise" on cost of money sounds to the irreverent ears of this observer to be as much of an adventure into the realm of economic clairvoyance, as the old nut-and-bolt valuation testimony of the twenties and thirties. The

(Please turn to page 49)

Corrosion of underground cables (Electrolysis)

By HAROLD B. McKAY

PART VI

CHEMISTRY OF CORROSION—The foregoing material was written in a manner which purposely avoided the use of words or theories which might not be familiar to telephone men. However, other literature on this subject does use words which are probably closer to the realm of chemistry and physics than to telephone work, and some kind of an understanding of these words is necessary to pursue the matter further.

The concept of electrolysis has its roots in atomic theory. However, one is apt to be dismayed when it is found that the dictionary lists about eight such theories, and the dictionary was printed before the first atomic bomb went off, which changed things somewhat.

At any rate, it appears that all substances on earth are made up of tiny particles called molecules. The molecule, in turn, is made up of smaller particles called atoms. If all of the atoms in a molecule are the same kind, the substance is called an element, if they are different the substance is a compound. Metals, for instance are elements, but when metals combine with something else, such as an acid, a salt is created, and the salt is a compound. Thus, in a simple battery, the atoms of the metal zinc, when attacked by the compound sulfuric acid, combine with the atoms of elements sulfur and oxygen to make a new compound in molecules of zinc sulphate.

In the language of chemistry this is written as follows:

$$2Zn + H_2SO_4 \rightarrow Zn_2SO_4 + 2H\uparrow$$

The letters stand for the names of the elements, the numbers for the number of parts of each that enter into the composition. The numbers also represent the numbers of atoms in each molecule. Thus the molecule of the compound sulfuric acid contains two atoms of hydrogen, one of sulfur and four of oxygen. The horizontal arrow in the above formula means the reaction proceeds in this direction, that is the acid and metal make a salt. The vertical arrow next to the H means that hydrogen gas is released (and goes upwards out of the solution).

Balanced Charge

Now, each atom is presumably composed of a nucleus surrounded by electrons which travel around in orbits. The nucleus may be thought of as positive, and the electrons negative. The structure of matter is such that the sum total of these charges balance out under normal conditions. That is, if there are a number of electrons each carrying a negative charge, the nucleus will have an equivalent number of positive charges to balance them out.

However, if for some reason an electron is added to or taken away from an atom, the result is an unbalance, and the atom, instead of being neutral, will be either definitely positive or negative. If an electron is removed, the positive will then predominate and a positive charge results. The reverse is also true. Adding an electron makes a surplus of negative charges, and the atom becomes negative.

There are numerous ways that electrons can be displaced. When you slide into your car on a cold dry day, you may get a spark and shock when you touch the ignition switch. This is because sliding into the car rubbed a few electrons off the seat of your pants, and thus you acquired an electric charge.

When the electric charge is unbalanced on any substance, it is said to be "ionized," and a particle which exhibits an electric charge is called an "ion." Ions can be positive or negative, according to whether an electron has been added or subtracted as described above.

When a salt is dissolved in water, the ions become apparent as electric charges. With zinc sulfate, mentioned above, the zinc carries the positive charge, the sulfur and oxygen the negative. Together they are balanced and neutral. Dissolved in water, the zinc is available as a positive ion, the rest as a "sulfate" ion. Metals and hydrogen are always positive in these cases, and the rest of the compound negative.

Ions Travel

When electric current is passed through a solution of such a salt, the positive ions are attracted to the negative terminal and the negative attracted to the positive terminal.

This explains a couple of things referred to in the first chapters of these articles. First, this is how electricity travels through a solution. It is a movement of ions, rather than electrons. In a vacuum tube, or along a wire, when current travels, there is a movement of electrons. Actually, the source of power pushes electrons in at one end of the wire, which displaces electrons all along the line, and pushes them out at the other end. It is like a piece of pipe filled up with golf balls; if you put another in, one comes out at the far end.

Thus, electron flow is from the negative end, and is the reverse of the direction of current flow by this logic. This is why in talking electronics, circuits are often traced from the negative, while in these articles on electrolysis we think of the currents as going from positive to negative.

This matter of ions and their being attracted to electric poles also explains the earlier statement that when a pole is positive it corrodes. When ions leave a positive pole to enter the solution, the ion is actually an atom or particle of the metal, which is why the metal is carried away.

In passing, it is of interest to note that any time a metal is placed in a solution, even in water, it "tries" to dissolve. Actually perhaps a few particles of it do actually dissolve. In so doing, some of the atoms lose electrons

and ionization results. The water around the metal will become positive and the metal negative.

The ability of a metal to "try" to dissolve is referred to as its solution pressure, and the electric charge which develops as a result of this effort is called electrode potential. The fact that different metals have different abilities to try to dissolve, results in different potentials or voltages being acquired by different metals when they are placed in a solution. This is the reasoning which results in the electromotive force table which was printed earlier in this series.

This is why if zinc and copper are placed in a solution, a battery will result. The zinc will acquire a greater negative charge than the copper, therefore, the copper will be less negative (hence positive) to the zinc, and when we have positive and negative, current can be made to flow and we have a battery.

Acid and Alkali

The chemical formula for water is H_2O, which means two parts of hydrogen and one part of oxygen. If this is broken down and ionized, we get one part of hydrogen (H) which will have a positive charge. In theory, the other part of the hydrogen and the oxygen, which is designated (OH), will carry the negative charge. This is called the hydroxyl ion. Actually the hydroxyl would not exist alone as it is not a substance as such.

The hydroxyl ion is always in combination with something else. When in combination with a metal it creates an alkali. Thus Sodium Hydroxide (NaOH) is a strong alkali—soda lye. Potassium hydroxide is potash lye. Incidentally the "Na" for sodium in the above formula comes from the Latin word for sodium—natrium.

Whereas the hydroxyl (OH) ion is negative and imparts a basic or alkali condition to the compound it is in, the hydrogen ion alone (H) carries a positive charge and creates an acid condition. Thus (H) is necessary to have an acid, and as the chemical formulas for most alkalis end in (OH), the formula for most acids start with (H), such as HCl (hydrochloric acid); H_2SO_4 (sulfuric acid).

In electrolysis work, the amount of hydrogen ions tells the condition of the soil, whether acid or alkali. Because the number of ions are related to the number of atoms in a sample, the actual number could involve astronomical figures. Therefore, a simpler approach has been worked out. This involves the use of the factor "pH" which refers to the hydrogen ion *concentration* in a solution.

As explained above, when a salt is placed in a solution, the positive and negative ions become manifest. When an acid is placed in water, the charges also separate, and the hydrogen ions are available in the water. In fact, the presence of hydrogen ions in the solution is what makes it an acid.

Normal Solution

By definition, one gram of hydrogen ions in a liter of water is regarded as a "normal" acid solution. This is regarded as a pH of zero. Because the amount of hydrogen ion concentration is a measure of the acidity of a solution, the pH factor tells us this information.

When the hydrogen ion concentration is one tenth (.1) of normal as defined above, it is called pH 1; if it is one-hundredth (.01) of normal, it is pH 2. Therefore, each pH number means a change in concentration of 10 times.

Because the hydrogen ions have their counterpart in hydroxyl ions, the concentration of one of these multiplied by the other will always result in the same figure. That is, either the acid or the alkali may predominate, but the two multiplied together will always give the same number. This number, in terms of the "normal" solution mentioned above is 10^{-14}. This number can be written by placing a decimal point, 13 zeros and then a 1. Incidentally the pH number is derived from this kind of mathematics. The pH for this number is the exponent on the 10. This is pH 14, which is a simpler number to use.

Now, if the hydrogen ions multiplied by the hydroxyl ions always equal 10^{-14}, then a solution which is neutral, neither acid or alkali (which has equal amounts of H & OH) would be pH 7. That is 10^{-7} for the hydrogen ions (acid) and 10^{-7} for the hydroxyl (alkali); the acid and the alkali being equal neutralize each other. The two minus 7's are added together because they are exponents; this is the same as multiplying the numbers they represent.

So, then, pH 7 means the solution is neutral. A number smaller than that means acid, and a number larger means alkali, which in the long run is about all you need to test a soil sample.

An idea of the significance of certain pH numbers can be obtained from the following table, which was supplied by University of California Agricultural Experiment Station:

Acid	Lemon juice	pH 2.2-2.6
Acid	Orange juice	pH 3.4-4.0
Acid	Sour milk	pH 4.6-4.8
Acid	Fresh milk	pH 6.6-6.9
Neutral	Pure water	pH 7.0
Alkaline	Human blood	pH 7.35
Alkaline	Sea water	pH 7.5-8.4
Alkaline	Soap solution	pH 8.7-9.9

Construction men have different opinions on the value of such chemistry and physics in electrolysis problems. Some companies maintain laboratories which make careful studies of the acidity or alkalinity of the soil in which their plant is buried. Others follow the methods outlined earlier in these articles and perform trial and error experiments until the trouble is remedied.

Others may go part way towards chemical analysis and at least use simple tests. In this connection there is available from the chemical supply houses a material similar to litmus paper. It is called "Hydrion" paper and can be obtained in grades which will show hydrogen ion concentrations from pH 1 to pH 11.

Farm Bureau

The acidity or alkalinity of soil is a matter of concern to farmers as well as telephone men. Therefore, another source of information on this subject is the local farm bureau, college of agriculture extension service, or university experiment station.

The above is the barest outline of the physics and chemistry of the corrosion of cables. It is by no means complete. Another chapter could be written on the various chemical compounds alone which form when cable corrodes. Actually, the corrosion is not a simple process, whereby the lead is eaten away and turned into a simple salt. Several compounds may be formed in sequence, each of which will have an effect upon future corrosion. The presence or absence of oxygen, or other gases in the moisture may result in different compounds being formed. There is even a type of soil bacteria, which reduces some chemical compounds to still others, and these, too, may be involved in a case of corrosion.

Some of the chemicals can be identified by experienced men from their color or other characteristics. In any event, these products of corrosion could be analyzed chemically, and a better understanding of the trouble obtained.

However, from the telephone man's point of view the important thing is to fix the trouble, which is why the practical aspect was given the most space in these articles, and this chapter added last for the benefit of those who would pursue the matter further.

The author wishes to acknowledge the kind assistance furnished by Bob Reese, chief cable tester for Pacific Telephone & Telegraph Co., who provided a great deal of material in these articles, and who checked the final manuscript for technical accuracy.

The End

THE TELEPHONE BUSINESS

in Competitive Prosperity

By DONALD C. POWER*

IN HIS PRESS CONFERENCE on Apr. 14, Secretary of Commerce Sinclair Weeks predicted that 1955 will be the peak year in the economic history of the United States. Prosperity records, the secretary believes, will be set in all fields. Nearly 7 million families will get new cars this year. As many as 1½ million will move into new homes. About 7 million will get new television sets. Pay checks for hourly employes that now average $75.30 a week will get larger. Living standards as a result will continue to rise. Food is going to be superabundant and somewhat cheaper. Clothing will be plentiful and reasonable. People generally will be better off than ever before. It will, indeed, be a year of what I like to call competitive prosperity.

These forecasts are all very exciting, but today I would like to look at how the telephone industry plans to face this era of competitive prosperity and what it is doing about the future. It seems to me that you people who are interested in analyzing securities and industry situations place a good deal of emphasis on past performance, but you place even more significance on prospects for future development and growth. That is the course I would like to follow in examining the telephone business in this year 1955.

When Mr. Alexander Graham Bell first spoke to Mr. Watson, only seven years had passed since the golden spike was driven in Utah which completed the first transcontinental railroad. Nearly half the people in America lived on the Atlantic seaboard and four-fifths of the population was located east of the Mississippi. Automobiles were still 20 years off and the airplane was a weird dream.

Communication was by personal visit, although the mail and telegraph could carry messages to distant places. Three-fourths of the people lived on farms and in villages and Mr. Edison had not yet developed his incandescent light. The fireplace served for both heating and cooking, fruits and vegetables came only in seasons and most clothing as well as food was the product of each man's labor. Stores and specialized establishments were rare, manufacturing was performed on a small scale and mostly in local shops.

D. C. POWER

This was the America in which people lived and worked—self-contained communities—where survival was dependent upon each man's or woman's own efforts. There was little occasion to travel very far or to communicate except rarely. There were long hours of work and little time for social activity. Mr. Bell's invention helped to change this picture considerably.

The transition from 1875 up to World War II is a remarkable one. Our economy which had been predominantly agricultural became more industrialized. Whereas only 25 per cent formerly lived in urban or suburban communities, the proportion changed to over 60 per cent. During the same period there was also a great migration of the population toward the West, the Northwest and the Southwest. Our methods of production changed and great shops evolved devoted to a single industry, particularly in the automotive field. Businesses became more far flung with the growth of transportation facilities.

The most signficant change which took place was the far greater dependence which individuals and businesses had on others. As opportunities broadened so did our social contacts, but all of these changes made us rely increasingly upon the assistance and product of others. Large manufacturing plants needed the products of others to complete their operations. People no longer lived in self-contained groups but relied upon the specialized efforts of others to supply their basic living requirements.

The telephone industry, of course, contributed a very significant part to these business and social changes. Telephones became fairly commonplace in homes and the widespread operations of business depended heavily upon them. As the nation grew and expanded the telephone industry made giant strides. A few statistics will bring the fact home to you quite clearly. By the end of 1880, there were

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Mr. Power is president of General Telephone Corp. and he gave this address at the National convention of The National Federation of Financial Analysts Society in New York City on May 10.

47,900 telephones in the United States; by 1900 this figure had climbed to 1,356,000; by 1920 we had reached 13,329,000 and by 1940, when the stagnation of World War II stopped much of our development, a total of 21,928,000 telephones were in service. Automatic dial equipment had been made available in many communities and, each year, as service expanded, the telephone became a better bargain.

Before telling you about some of the exciting possibilities which are ahead for the telephone industry, let me give you a few more statistics on telephone growth which sometimes seem fantastic. Even we who are in the business can hardly believe them when we read them ourselves. But it is in reviewing these statistics that we know that we have only started to scratch the surface of this business, contrary to what some people may think . . . but more about that later. Here are the eye-popping gains which have been made since we got started after World War II—let's say from the beginning of 1946. The telephone industry showed about 27,867,000 telephones in service at the close of 1945 and for the first full year following the war this total rose to 31,611,000. By 1950 we had over 43 million telephones in America, a gain of more than 11 million telephones in five years, and today that figure is about 52 million or an improvement of about 9 million more telephones.

Being familiar with utility operations, this phenomenal growth, as you well realize, required enormous amounts of money over the last few years and almost continuous financings. It seems to me that at least once a year and sometimes twice, the major telephone companies were going to market to raise additional capital. This fact, I know, has not escaped you. But the important point about these financing programs has been the ability of the telephone companies to maintain a sound equity ratio in their capitalization pictures and to increase their earnings substantially, thus preventing dilution of existing shareholders, a very necessary development if we were to maintain shareholder confidence.

This has been a particularly difficult accomplishment in view of the inflationary period which spiralled so fast following the close of World War II and the results of that inflation upon a regulated industry. Required as we are to provide telephone service when our customers demand it and not when we may be able to carry out such projects at the most favorable market price, much of our new telephone plant was installed at record high costs. Our earnings dropped sharply making it necessary to resort to debt financing and endangering our previously sound capitalization ratios. In the midst of business prosperity the telephone industry's earnings were at a dangerously low point.

Our problem then became rates and this was a big one to say the least. Public service commissions had not had the experience nor the staffs to handle adequately the deluge of rate applications which hit them. Telephone rates for the most part had remained nearly unchanged since some time in the 1930's. Management, too, was faced with the newness of the situation and very few experts or specialists were available in the telephone industry who had had any previous experience in processing rate revisions with utility commissions. The so-called "regulatory lag," the time between filing for higher rates and the time an order was issued by the commission, also had very serious effects on our earnings. The philosophy of many commissions had to be changed and management had to develop better methods of presenting its case in a manner which would avoid delay and would give the commissions the necessary information for advance study and thus eliminate the harmful effects of "regulatory lag."

Evidence of our progress lies in the improved earnings of telephone companies. Adequate rates are the life blood of the telephone industry as you well realize. Although a few commissions do not yet look upon regulation as a means of giving specialized industries the advantages of competitive enterprises while at the same time preventing the abuses of monopoly, it is my firm opinion that the regulatory climate so far as the telephone industry is concerned has shown real signs of improvement.

Another important development in our present situation which I would like to say a word about is the matter of sales. Since the end of World War II, all telephone companies have been devoting every effort to catching up with demand. It developed at one point that most people in the telephone industry spent most of their time keeping out of sight from their friends and neighbors for everybody wanted telephone service at once and no amount of explanation could convince them that the telephone companies were being anything but arbitrary by refusing to install a telephone immediately.

That situation is pretty much behind us now. Unfilled applications for service are down to almost nothing. The idea now is to expand the use of telephone service and facilities by selling hard. Our big problem here, as in our rate situation, is that we do not have many people who have had experience in selling. Those who have done some selling previously have been away from it for so long that they had forgotten how to sell.

We've changed all that and the results have been astounding. We have always believed that the potential of the telephone business has just been scratched and as our sales programs begin to take hold, our predictions are being confirmed.

The demand for new colored telephones has far outrun production and yearly budget estimates for an increase in telephones have already been exceeded in many cases. At one time we thought everyone had to have a black telephone. But like the automobile business, you furnish what the customer wants. Today we are supplying telephones in eight different colors and our customers like them so well that we are beginning to wonder what we're going to do with all our black telephones. We have set up merchandising and sales staffs within our organizations to push sales and train others to sell, and our internal publicity carries the message constantly that all of us can and must be salesmen. The goals which we can achieve are constantly being revised as we are exceeding the programs which we previously thought were optimistic.

Extension telephones, special directory listings, increased use of long distance, adjustments for hard-of-hearing people, dial lights, out-door gongs, all these services are useful and saleable — but equally important they produce additional revenue. Many subscribers know very little about these services and many more would buy them if a telephone representative would contact them. Our job is to get out and to sell to our customers—to sell real hard—and this we propose to continue doing even at an accelerated pace.

What's ahead then for the telephone industry? Where do we go from here? First of all with the demand for service continuing so strong I can see very little let-up in our expansion and construction programs. Conversion of most telephone service to automatic dialing, the large expense involved in the development of national toll dialing by our customers and continued high, efficient maintenance of our present facilities will all require large amounts of money. This will mean that additional enormous amounts of capital will have to be raised in the years ahead. This need for capital will probably not be on such a continually increasing scale in the next five years as it has been since the war, but if demand continues as strong as it is at present, I can

see very little slackening off in our requirements for new money.

Earnings we do not believe are yet adequate in some telephone companies and increased efforts will be made to bring these into line. As new increased costs become reflected in our telephone operations, it will probably be necessary to ask for further revisions in rates, even those which are currently considered adequate. All telephone companies are watching this situation very closely so that the regulatory commissions may be notified promptly of a drop in earnings. This procedure makes it unnecessary to ask for large amounts at any one time which on past occasions has aroused public opposition, and it also prevents earnings from dropping excessively before rate relief is requested.

But in looking toward the future, it is in the technical field and the future possibilities of advanced telephone service that the greatest interest is aroused. Our engineers have done and are doing truly phenomenal things and although some of us may not understand how all these advanced electronic wonders function, we do know that many of them have been applied practically and many more are being thoroughly tested before they are offered to the public. No great industry ever stands still and the telephone business is no exception.

One illustration is the trend toward small components of communication equipment. Such development will hold down costs and require less space. The transistor is typical of this trend. The transistor makes use of the metal germanium and consists of a tiny piece of metal which has been purified to an extremely high degree and then subjected to the introduction of carefully controlled impurities of different amounts and types all enclosed in a plastic bead. This remarkable midget, connected with suitable circuits and modest sources of power, will amplify, modulate, or generate with extraordinary efficiency and economy the electrical currents required for communication. It seems destined to revolutionize a good deal of the construction and design of electronic devices.

Another important communication development is the extension of so-called "carrier" systems. For some time the industry has been making use of "carriers" which will provide for the transmission of 1,800 telephone conversations over one pair of conductors in one direction by use of different frequencies. Even better ones are on the way. When applied to the coaxial cable this carrier system gives the coaxial cable, having eight coaxial units, a capacity of 5,400 telephone circuits—even after allowing for one pair of coaxial units as a reserve.

A great deal of publicity has been given to the new cable which will be laid at the bottom of the sea connecting the United States with Europe. This cable is equipped at frequent intervals with telephone repeaters and will survive the rugged service conditions of submarine cable without requiring any maintenance for decades. Telephone conversations between North America and Europe will be greatly improved and will not be interrupted, as occasionally happens now, by atmospheric conditions.

Expansion of mobile telephone service is another of our growth areas. It is not impossible to conceive of mobile telephone equipment being a standard part of every automobile. People would no longer be stranded beside the road with trouble, salesmen would make advance appointments before going to the next town and a call home from a late arriving father would ease anxiety among the family. Today mobile service has been installed in 300,000 various kinds of business vehicles. Another 15,000 are in private automobiles. Mobile service has been installed on passenger trains, on pleasure boats and harbor crafts. Development of mobile service has hardly started and although there are still some technical problems to be overcome in order to make this service profitable, to the telephone companies as well as useful to the subscriber, we know that we will get mobile service on a practical basis in time.

During World War II the various military groups made extensive use of the so-called "Walkie-Talkie" units. From this practical application might well develop the cordless telephone which would make the telephone operative from anywhere in your home without wiring each location. Sounds weird? Not at all. As far back as 1940, experiments were being made with this type of equipment.

In service in many offices today is a telephone instrument which enables you to talk and listen without lifting the instrument off the cradle. A small microphone and a tiny speaker transmit and receive conversations allowing freedom for both hands. If you want the conversation to be more private because guests are present, the telephone may be lifted to the ear and used in the conventional manner.

One important factor which will keep the telephone industry growing, and one which I have talked about many times before, is the astounding increase in the population of the United States. Almost constantly the census bureau has underestimated the rate of increase and each time the results are tabulated from actual count, we find that the United States has far more people than we imagined. New families are being formed at a rapid rate, construction of new homes, as I pointed out earlier, is exceeding all records and in each of these homes and families we intend to sell at least one telephone and if possible two or three.

As the population grows, it is spreading out. We can't all live in New York, Los Angeles or Chicago. So there is a constant migration away from the large cities toward the suburbs and less congested areas. Business also is following this trend and decentralization is one of the key activities in our development today. To the telephone industry, decentralization is a happy circumstance for communication is a key factor among widely spread out operations. We've all heard about this present movement of business and industry but few of us, I believe, have recognized its scope or its implications. The telephone industry, believe me, is very much aware of it, and it is a strong force behind our continuing expansion program.

These are just some of the things which presently are exciting the imagination of all of us in the telephone industry. This is our present status in the competitive prosperity of 1955. What is the ultimate of all this planning, this activity, this development? I would like to quote from a statement made once by Harold S. Osborne, who, until his recent retirement, was chief engineer for American Telephone & Telegraph Co. Here is Mr. Osborne's forecast:

"Let us say that in the ultimate, whenever a baby is born anywhere in the world, he is given at birth a number which will be his telephone number for life. As soon as he can talk, he is given a watch-like device with 10 little buttons on one side and a screen on the other. Thus equipped, at any time when he wishes to talk with anyone in the world, he will pull out the device and punch on the keys the number of his friend, then, turning the device over, he will hear the voice of his friend and see his face on the screen, in color and in three dimensions."

On the steps of the Archives Building in Washington is inscribed the motto, "What is Past is Prologue." A visitor one day asked a cab driver the meaning of the motto. "Well, mister," the cab driver answered, "roughly it means 'You ain't seen nothin' yet'." I don't want to predict what the ultimate will be for the telephone industry, but if the past and the present are any criteria for the future, I can only add "you ain't seen nothin' yet."

THE PLANT MAN'S Notebook

by Ray Blain, Technical Editor

IF YOU WILL BEAR with me for a minute, I will tell you about my most recent trip by air to Alaska. This was my fifth and by far the most interesting trip to the Northland.

We left Washington, D. C., one bright and sunny morning via Northwest Airlines, and changed to one of its stratocruisers in Detroit, arriving in Seattle about six o'clock, Pacific Time. After a night's rest, we boarded a Pan American DC-6B and arrived at Juneau, Alaska, about 2:00 p.m.

Here we changed to a PBY flying boat of Alaska Coastal Airlines and arrived at Skagway one hour later.

We stopped briefly at Haines en route. This is the southern terminal of the 8-inch oil pipe line that extends 625 miles north to Fairbanks. The provision of communication for dispatching on a pipe line of this type is in itself no small task.

Skagway claims to be 1,000 miles north of "worry" and to have a population of 750. In my personal opinion, both claims might be questioned.

This town is located at the start of the Chilkoot trail over which thousands of prospectors made their mad rush to the Klondike back in '98.

We spent the night at the Pullen House and in the morning ate sour dough pancakes baked by the famous "Skagway Jim."

We also took a jeep ride over a new and rough road, a distance of about 9 miles, to view an old-time mining camp. It is rides of this nature that make walking a pleasure.

While in Skagway, we also spent some time on the Signal Corps cable ships, the "Lenoir" and the "Myer." We witnessed the landing of the Skagway end of the Ketchikan-Skagway coaxial submarine cable.

This cable was pulled by a landing craft and floated ashore from the ship on oil drums and air-filled neoprene balloons. When the oil drums sank as the result of overloading, they collapsed and flattened.

However, this submersion did not appear to have any effect upon the balloons as they came up still inflated (see cuts).

The splicing of this coaxial submarine cable on shipboard proved to be a most interesting question. The use of public address and intercommunication systems, as well as short wave radio communication, certainly make submarine cable laying operations more expeditious, efficient and safe.

Floating Ketchikan-Skagway submarine cable ashore.

At Skagway, we also met R. R. Cornett, who was in charge of the maintenance of the open wire line along the White Pass and Yukon Railroad, between that city and White Horse, Yukon Territory, a distance of about 110 miles.

Line maintenance through this mountainous region in severe winter weather presents numerous problems not ordinarily encountered in telephone work.

We flew from Skagway back to Juneau in a Grumman Goose. The next day we flew on Pacific Northwest Airlines to Anchorage. After a day here, we boarded an Alaska Airlines DC-3 for Fairbanks where we spent a most enjoyable day with the communicators of that area. Here we visited the Fairbanks municipally-owned dial telephone exchange.

Returning neoprene balloons to cable ship.

We were welcomed and conducted through the exchange by L. L. Glasco, superintendent of the telephone department for the city. The exchange building has recently been rebuilt and enlarged and arrangements are being made to install additional switching equipment.

Next we flew back to Anchorage where we spent several interesting days. The city of Anchorage also has a municipal dial telephone exchange housed in a fine modern building.

We also enjoyed a visit with L. R. Zinns, superintendent of the telephone department for the city. In Anchorage, too, we called on Bill Burke, of the Kellogg Switchboard & Supply Co., and Bob Stone, of the North Electric Co. These two gentlemen just happened to be in Alaska at the time and fortunately our paths crossed.

The Anchorage area is growing so fast that expanding the telephone system to meet the needs of the community has proved a real task for all communication agencies.

The weather in Alaska was good all during our trip—daytime temperatures about 50 degrees F., night, near freezing. The snow last winter was heavier than average—in the Anchorage area, over 134 inches, which is above normal for this region.

Whittier, noted for its tremendous snow and rainfall, broke all records last winter with a total of 69.86 feet. The snow fall a year ago was only 43 feet in this section.

We visited this region in late May and found drifts over 14 feet still remaining. It is doubtful if it all will be melted until late June or July.

We have never personally cared much for winter weather nor heavy snows

XUM

and after obtaining these weather facts first hand, we like Florida even better than ever!

When we had finished our work in the Anchorage area, we boarded a DC-6B of Northwest Airlines and in only four hours arrived in Seattle. Here, we stopped off for a day at the headquarters of the Alaska Communication System. It is always a pleasure to compare problems with the excellent communicators of this organization. The flowers in Seattle at the time of our visit were the most beautiful that we have ever seen and all the yards were loaded with them.

In Seattle we also had the pleasure of a visit with W. R. Jarmon, president of the General Telephone Co. of the Northwest, who was on two weeks active duty with the Alaska Communication System as a reserve colonel in the Signal Corps.

Mrs. Jarmon accompanied her husband on this trip and we enjoyed a discussion of the telephone business with her. It is most unusual to meet a lady who has such a thorough understanding of plant subjects. She gave us a complete and most interesting account of the Automatic Ticketing System, presently being used so successfully by General of the Northwest.

Finally, our work in Seattle was completed and we boarded a DC-6 of Northwest Airlines for the return trip east. This was our 24th transcontinental flight. A short stop at Portland, Ore., and then non-stop to Chicago.

The Rockies were beautiful as usual, and en route the pilot pointed out the spot on the Little Big Horn where General Custer made his last stand. We changed to Capital Airlines in Chicago for the last leg of our flight to Washington, D. C.

The entire trip required a period of 12 days and we had a total of over 40 hours flying time.

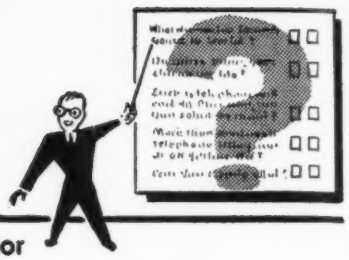
Our two Leicas, one for black and white, and one for color, also made the trip. It is hoped that the pictures will be of such quality that they will make worthwhile additions to our fast-growing collection of views of the Northland.

• • •

It has been said that a lot of good could be done for the world if nobody cared who got the credit for it.

"It [the annual report] must be the story of a company's problems, practices, its achievements and failures of the past, and its plans and hopes for the future." — ALBERT K. CHAPMAN, *president, Eastman Kodak Co.*

PLANT MAN'S QUIZ



by RAY BLAIN, Technical Editor

Q. Please explain how the three-wire splice is made and whether it is considered suitable for use with steel wire on a rural line.

A. This splice has not been generally used for many years. It was made by clamping the two ends of the line wire and an extra wire in two pairs of connectors or splicing clamps. These clamps were then turned about three and a half times to twist the wires together between them.

The ends were then served with a pair of pliers, the ends nicked and broken close to the line wire.

This method made a neat splice and was much better than the old two-wire Western Union splice. It was not, however, a good splice under present-day standards. Each would corrode and cause noise trouble in time.

In addition, when the three-wire splice was used, the line wire was of a rather soft variety. We would not care to attempt to make this splice in the modern high tensile strength steel wire.

There is little doubt that the modern compression type sleeve is the best line wire splice we have ever had. This splice is easy to make, low in cost, and lasts indefinitely.

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Q. Just what are the "E" and "M" leads on a carrier system?

A. These are the signaling leads for long-haul circuits. The "E" lead is the wire that carries the supervision, dial pulses or other signals received from the trunk circuit.

The "M" lead is the wire over which these signals are sent forward over the trunk circuit.

• • •

Q. How will the underwater repeaters be powered on the proposed transatlantic submarine telephone cable?

A. We understand that these repeaters will be powered by the transmission of direct current from the two ends over the coaxial circuit. A potential of about 2,000 volts of opposite polarity is required at each end of the cable.

A constant current system providing about 225 m.a. will be employed. The plate voltage is developed by the IR drop across the cathode heaters.

• • •

Q. In locations where it is difficult to obtain a low resistance ground connection, we would like to know whether a deep-driven rod will be of material benefit?

A. If you go deep enough, a suitable low resistance ground can generally be obtained in most localities. One authority gives an example of a ground resistance of over 30 ohms when a ⅝-inch rod is driven to a depth of only about 12 feet. But when this rod is driven to a depth of 55 feet, the resistance is reduced to about 10 ohms.

When deep grounding must be used, sectional type rods and a Barco gasoline hammer makes the job a fairly easy and not an overly expensive task.

• • •

Q. Will the use of plastic pipe be satisfactory as an underground conduit to protect a small lead-covered cable for a service entrance to a residence or small apartment house?

A. Undoubtedly, this would be a satisfactory arrangement except for the fact that the plastic pipe which we have priced to date would not prove economical.

In our opinion, the use of small fibre or Transite conduit will prove more desirable and economical for this purpose.

• • •

Q. What type of salt is recommended for placing on poles with a view to reducing the damage to lead cable sheath by the gnawing of timber squirrels?

A. We understand that the type best for this purpose is a solid disc approximately 2½ inches in diameter and about ¾ inch thick. A ¼ inch mounting hole is provided in the center.

This is known as Rabbit Salt Disc commercially, and is available at most animal feed stores.

SMALL COMPANY PROGRAM

Planned by Wisconsin Association

By R. C. RENO

A WISCONSIN state-wide program of assistance to the smaller telephone companies of that state was one of the major subjects discussed at the 45th annual convention of the Wisconsin State Telephone Association, held on May 4 and 5 in Madison.

The association has established a General Small Company Committee and five district sub-committees which will contact all small companies and offer assistance concerning any problems confronting them.

Association President B. H. Piepmeier of Black River Falls discussed this program in his annual address and reviewed the results of a survey conducted by the association to gather information on small exchanges that may need the assistance of the association's committees.

Mr. Piepmeier stated that the studies completed thus far indicate a few causes of distress, which he summarized as follows:

(1) Incompetent management.
(2) Inadequate rates and financing.
(3) Incomplete accounting records.
(4) Depreciated conditions of existing plants.
(5) Demand for better service.

Concerning the above mentioned causes, Mr. Piepmeier stated:

"It is possible to sum up the causes by saying that most of the difficulties can be attributed to poor management. If proper management can be provided, many distressing causes can and will sooner or later be overcome.

"Management cannot be efficient if the telephone business is a side line, as is the case with many small companies. The owner, if but one man or a group of stockholders, should be anxious to safeguard their investment by securing competent management and this can only be done in many cases after consolidation, or merging.

"The studies made to date indicate that many small exchanges can solve many of their problems by some form of consolidation or grouping.

"There is apparently no outstanding reason why several small exchanges could not consolidate their interests and by so doing, form a group that would support a competent manager who could operate the properties economically.

"It would be difficult, under all conditions, to say that the group must have at least 500 or 1,000 telephones in order to operate efficiently, but it certainly cannot be done with less than 300 telephones."

Mr. Piepmeier also recommended that commercial telephone companies absorb switch-line companies into their operations, as many of their facilities are deteriorated and render poor service. On this point he said:

"There are many switched-lines and small operating exchanges existing today that have no real value. I have recently looked over switched lines and small exchanges with the hope of taking them into some of our exchanges or group, and I am very frank in admitting that in numerous cases there was not a single pole in their rural area that had any value.

"The wire was rusty and full of hand joints, and the telephones were all very old. What can be offered for such a plant? The day you take it over you would have to start from "scratch," in fact, you would be ahead if they had no plant, as it must all be removed.

Newly-elected president of the Wisconsin Telephone Association, J. F. BENJAMIN (left) of Cumberland receiving gavel from Past President B. H. PIEPMEIER (right). Association Secretary RAY J. RIORDAN looks on.

"Switched-lines and small companies of this kind have many big problems. However, if these small exchanges or lines can secure adequate rates and be grouped under competent management, they will earn a fair return on every dollar that is economically expended, and the final results will be better telephone service."

"The smaller and run-down commercial companies and switched-lines present a challenge to our industry. We cannot turn our head and deny them help, they belong to our industry, and we must work rapidly to correct this problem if we expect to grow and give the over-all better service that the public is demanding," Mr. Piepmeier concluded.

Improvement in labor saving devices, popularly referred to as "automation," will not cause substantial unemployment, Wisconsin's Lieut. Gov. Warren

P. Knowles told the convention. "What to do with leisure time rather than unemployment may be the main problem caused by labor-saving machines," he said.

As an example of the encouraging effect of automation, Mr. Knowles cited the telephone industry and the rapid progress it has made in changing to automatic operation in many communities.

He pointed out that in spite of automation, the telephone industry in the past 10 years has actually experienced an increase of 79 per cent in the number of operators it employs, or a total of 159,000 additional operators.

Mr. Knowles also held out a challenge to the telephone industry to try to do more to improve telephone service to the farmers of the state.

Mr. Knowles also observed that if telephone companies are to improve and expand service they cannot be overregulated by state commissions, as overregulation tends to adversely affect their ability to raise the necessary new capital for such expansion.

The matter of assistance to small companies was again emphasized by a panel discussion presided over by Ray J. Alter of Galesburg, Ill., president of the Illinois Telephone Association, and members of that association's small company assistance committees, which have been conducting an "aid to small companies" program in Illinois during the past few years.

Taking part in the panel, in addition to Mr. Alter, were Larry Bottomley, H. J. McDonald, both of whom are secretaries of district small company committees and Max V. Wisgerhof, chairman of a district committee.

Immediate past president of the Wisconsin association, B. H. PIEPMEIER (left), hands plaque to T. H. SANDERSON of Rio, Wis., honoring his service as a past president of the Wisconsin association.

They told of how the Illinois program is carried out and listed results of the committees' work in helping small companies with automatic conversions, outside plant improvements, accounting procedures, consolidations, incorporations and general management problems.

Association Secretary-Treasurer Ray J. Riordan, in his annual report, brought attention to the state and federal legislative efforts to revise existing minimum wage regulation.

He cited the appointment of an advisory committee by the Wisconsin Industrial Commission, which is to make recommendations regarding an adjustment in the state's present scale, and also referred to a series of bills introduced in the current session of the state legislature, which would establish either a 70- or 75-cent hourly base rate.

Mr. Riordan said that 90,000 telephone customers in Wisconsin would feel the impact of such legislation to the tune of $505,000 if a 70-cent minimum is adopted, or $618,000 if a 75-cent limit is established.

In regard to federal proposals, he stated that industry efforts to fight the loss of the exemption for operators in exchanges of 750 stations or less had been "apathetic" to date, and that more letters and telegrams should be sent to Washington urging retention of the exemption.

Other bills in the state legislative hopper would make it necessary for the state public service commission to determine the reasonableness of salaries of public utility officials before allowing rates for service.

Another measure would increase the public service commission from three to five members, one to be chosen from the public, one representing the farmers, one from small business, one from labor and one from industry.

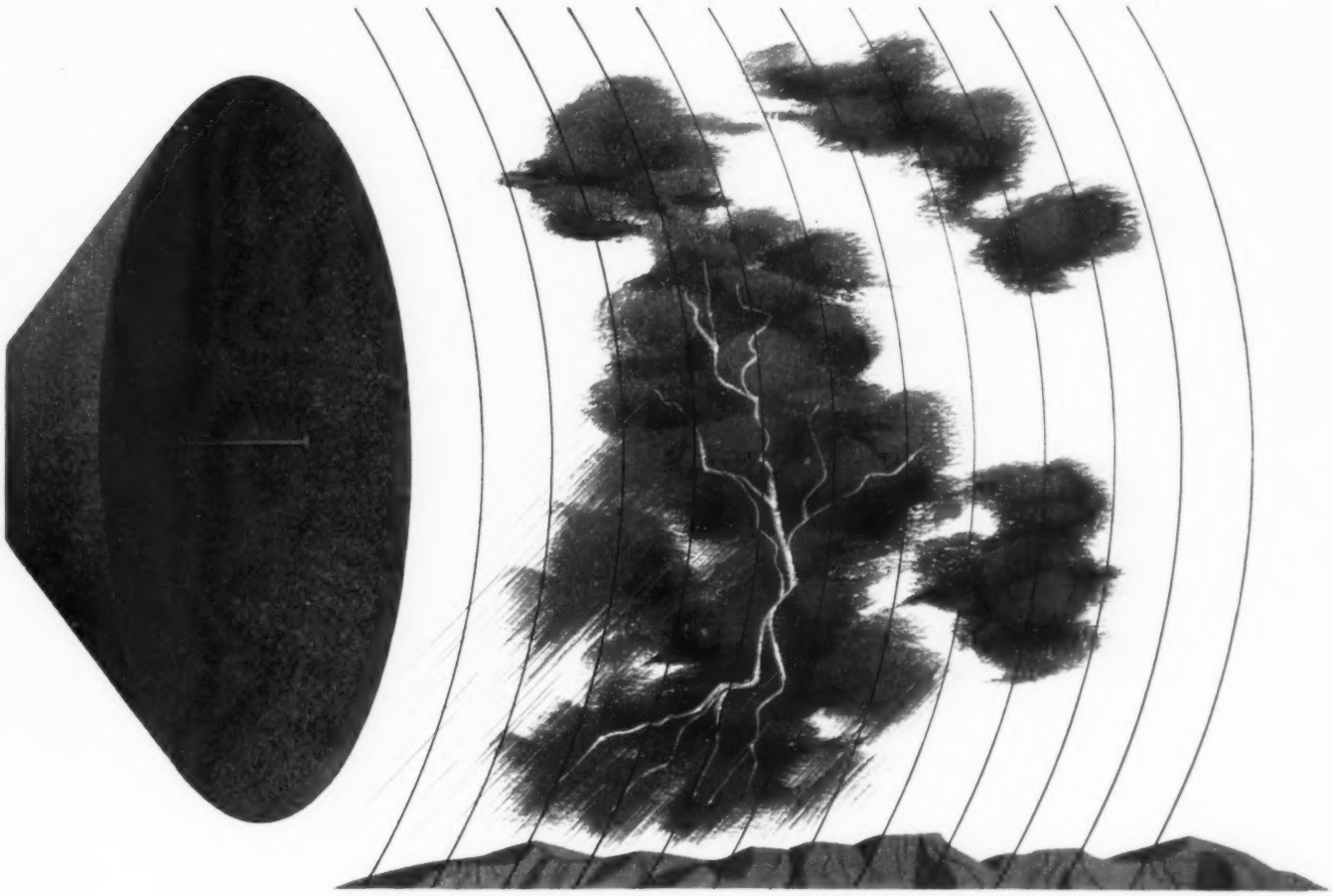
He also referred to bills which would provide additional funds for establishment of a micro-wave system designed to supplant existing commercial telephone facilities used by the state.

In closing his report, Secretary Riordan told of the Wisconsin association's effort to formulate an insurance plan for the smaller companies; briefly outlined progress made by the association's Foreign Wire Committee, which is preparing material to aid companies taking advantage of joint-pole use, and referred briefly to the association's progress in working out an industrial management course with the Univer-

(Please turn to page 30)

Early-comers registering for the Wisconsin meeting.

99.8% EFFICIENT



Lenkurt Microwave ignores the weather!

"DOWNTIME: Less than 0.2%. OUTAGES DUE TO FADING: None whatsoever. SERVICING NEEDED: Minor repairs (mostly replacements of tubes) handled by the telephone company's own maintenance men".

These figures and facts tell one company's remarkable (but not unusual) story of Lenkurt Microwave's dependability throughout a year of service.

Twenty-four channels of Lenkurt Microwave were set to work, handling the busy traffic over this troublesome terrain. Confidence in this equipment was confirmed as the months went by and outages proved measurable in minutes only—very few minutes, very quickly cleared up by minor, *indoor* maintenance!

Today, on that same stretch the telephone company maintains its physical lines—as stand-by facilities! Day-in, day-out traffic goes over equipment they can be sure of—in any weather!

Investigate *dependable* Lenkurt Microwave today—the *weatherproof toll line* that can solve your most troublesome problem!

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Low Initial Cost

Investigate Lenkurt Microwave's low first cost. You'll find it may prove in over physical equipment for distances as short as 13 miles!

Package Engineered

Automatic Electric "Follow-Thru" Engineering eliminates ALL problems in Lenkurt Microwave installation and maintenance.

Easily Serviced

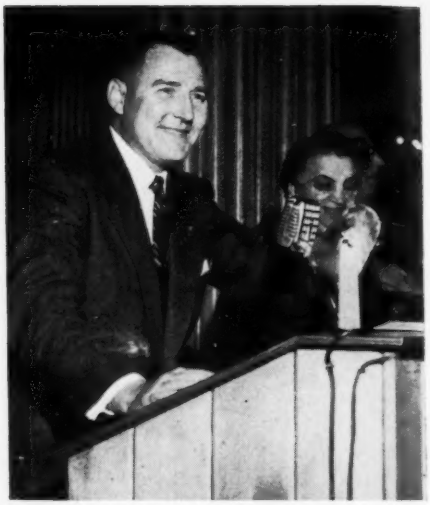
"Follow-Thru" Engineering includes training your personnel in the simple techniques involved in Lenkurt Microwave maintenance and servicing.

Manufactured for

AUTOMATIC ELECTRIC

ORIGINATORS OF THE AUTOMATIC TELEPHONE

AUTOMATIC ELECTRIC—LEADERS IN CARRIER COMMUNICATION—**LENKURT**



LEFT: DAN AULT of the United Telephone Co. of Monroe, Wis., telling the Wisconsin convention about his company's experience with subscriber carrier. CENTER: President of the Wisconsin Telephone Co., C. E. WAMPLER, addressing convention. RIGHT: KARL MESS JR. of the Price Telephone Co. of Phillips, Wis., serving as toastmaster at the Wisconsin convention banquet.

sity of Wisconsin which would be beneficial to the telephone industry.

Charles E. Wampler, president of the Wisconsin Telephone Co., in an address entitled "Industry Challenges," said that his company, during the first three months of 1955, experienced a demand for main telephone service averaging 70 per cent greater than the total for the same period in 1954.

The total demand, including residence extension telephones, is more than double the comparable period of last year, he said.

The most tangible reason found by his company for this continuing and surprisingly high demand for service is the housing boom which is running about 35 per cent ahead of a year ago. Also contributing are general business conditions, he added.

To keep pace with the continuing demand, Mr. Wampler said his company would maintain its construction program at about the same level as in 1954, about 2 million dollars a month.

Mr. Wampler discussed challenges which face the telephone industry, touching on such matters as continuing development, party line service, rural facilities, and determining the market potentialities for telephone services and equipment.

Concerning party line service, he pointed out that three-fourths of his company's customers share their telephone service with one or more other families.

"Telephone service is one of the very few things a customer is sharing today with someone else," he pointed out. "He doesn't share his automobile, refrigerator, or the many other things he uses."

Concerning rural telephone service. Mr. Wampler emphasized that "good telephone service can be a very important help to the running of a modern farm, just as it is in running any other business enterprise."

A highlight of the convention was a panel discussion titled "Phases of Utility Regulation." Participants were Charles W. Ahner, vice chairman of the Wisconsin State Highway Commission; C. M. Chapman, director of the Utilities Tax Division, Wisconsin Department of Taxation, and A. W. Enright, member of the Wisconsin Industrial Commission.

Questions put to the participants by the moderator, Wisconsin Association Secretary Riordan, revealed problems confronting the industry and involving the various departments represented on the panel.

It was pointed out to Mr. Ahner that the association received many complaints of insufficient notice regarding highway relocation projects. Smaller companies, particularly, felt the pressure since manpower forces, material and supply stocks and funds are limited. Mr. Ahner replied that his department was cognizant of the circumstances and was embarking on a program to set up district meetings throughout the state each fall, at which road relocation projects would be revealed to utilities six months in advance, thus permitting companies affected to program their work accordingly.

The principle question directed to Mr. Enright, asked the purpose of an advisory committee named by the Wisconsin Industrial Commission. He described the commission's responsibility in establishing a fair wage rate and regulation, and said the advisory committee was selected from the labor, business and the public, to make recommendations as to what might be a fair hourly rate. Once the committee agrees upon the rate, it is taken under advisement by the commission, public hearings are held throughout the state so that all interested parties may appraise the committee's findings, and if these are acceptable to the majority, the commission draws the necessary rules and regulations to make it effective.

Mr. Chapman concentrated on the gross earnings tax or license fee existing in Wisconsin, explaining that it was in lieu of other taxes, principally real estate, and was a percentage levy on a company's annual revenues. Asked if this type of tax was advantageous, as compared to real estate fees, Mr. Chapman pointed out that the gross earnings tax was more simple to calculate, thus reducing book work, and that while in some instances it might prove lower to companies than a real estate levy, that other instances would prove it a bit higher than the real estate levy, that actually it would be impossible to state in broad terms, which of the taxes would be least costly in terms of actual cash outlay.

A report of the activities of the United States Independent Telephone Association was presented by Leon F. Roberts of Washington, D. C., USITA Director of Information.

He traced the work of the national association in connection with such projects as:

Preserving the provision in the federal Wage and Hour Law exempting operators in exchanges of 750 stations or more.

Line haul prorate studies to secure necessary data to conduct further negotiations with the Bell System on toll settlements.

Opposing the establishment of a state-owned communications system in California.

(Please turn to page 51)

"It's a long way to Tipperary..." almost as far as the next pole!

● It's probably not *that* far to the next pole, but it *is* a long way, all right. Those poles are strung with Amertel 135!

When you use Amertel 135 you can space your poles 2½ times as far apart as if you used ordinary BB wire. That means you use fewer poles, less pole hardware . . . you dig fewer holes. Most important, you cut costs on pole installation and maintenance.

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TELEPHONE & TELEGRAPH WIRE

UNITED STATES STEEL

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Stronger Automatic
installations
exceed all others

Records prove that when a telephone company standardizes on Stowger Automatic, that company normally begins a new, successful, prosperous era. Here are a few of the reasons why.

Hour of Decision

—success in the making!

Debate on future equipment needs may run hot and heavy—yet, in the end, most telephone companies will decide on Strowger Automatic! In choosing Strowger, they are making a definite move toward future success and prosperity, because Strowger is *best suited for modern needs.* Here are a few of the reasons this is so—reasons why Strowger Automatic is called "the world's most *modern* exchange":

1. *Unlimited Service Features:* Supremely flexible in its adaptability to new services, Strowger is ideal for meeting rapidly changing needs. As each new requirement arises, Strowger exchanges are readily changed to meet it—and new Strowger equipment is designed to include it.

2. *Low-cost Maintenance:* Strowger Automatic beats today's high labor costs. Simple operation, simple circuits insure most efficient use of maintenance personnel.

3. *Maximum Expansibility:* Today's booming housing and business growth are being met easily in Strowger Automatic areas by simply adding switches, shelves and frames.

4. *Fastest Local Switching:* Modern heavy telephone usage demands fast switching for equipment economy. With Strowger Automatic, the ringing cycle *starts immediately* when dial stops after last digit—nothing could be faster!

Men who own Strowger Automatic say it is unequalled for long life, unequalled for fine modern service. For full details and helpful consultation, write *Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7. Or, call HAymarket 1-4300.*

Why Gamble?

AUTOMATIC ELECTRIC

ORIGINATORS OF THE AUTOMATIC DIAL TELEPHONE

The OPERATOR'S CORNER

by MAYME WORKMAN, Traffic Editor

CONTINUING our trip to the Hawaiian Islands, Tuesday morning, Apr. 19, Sadie Hunter and I flew to Hilo on the Island of Hawaii, the largest island in the group, being more than twice as large as all other islands combined. It contains 4,030 square miles and its population is 66,330. Two huge volcanic mountains, extinct Mauna Kea (13,784 feet) and active Mauna Loa (13,784 feet), tower over the island, their summits mantled with snow many months of the year. Mountains rise from more than 18,000 feet below the sea to make the total height of each more than 30,000 feet.

Among the many points of interest on the Island of Hawaii are: Rainbow Falls; Kalapana Black Sand Beach, where greenish-blue waters wash jet-black sands; Hawaii National Park boasting two live volcanos, Mauna Loa and Kilauea; scenic Alaska Falls; Hanauau, city of refuge; and cowboys, Hawaiian style.

Manager Sherborn K. Smiddy of the Hawaiian Telephone Co. met us at the airport and, as usual, it was time to eat and we enjoyed a delicious luncheon at the country club. After lunch we visited the telephone exchange in Hilo and I met the chief operator, Miss Lillian Perrero, and other employes of the Hawaiian company.

All of the telephone exchanges of the telephone company are attractive and well maintained and I was especially impressed with the cleanliness and neatness of the operators quarters.

In the afternoon, Manager Smiddy took Miss Hunter and me for a ride and we saw many things of interest, outstanding of which was the volcano which had erupted shortly before my visit to the island (TELEPHONY, Apr. 30, p. 20).

We saw the lava and a great deal of the destruction of property resulting from the eruption. Smoke was still in the vicinity and the sulphur fumes were very strong. There were many deep crevices, some too deep to see bottom.

This is the third installment of an article by Mrs. Workman, who also is executive secretary of the Independent Telephone Pioneer Association (ITPA), reporting on her recent visit to the Hawaiian Islands to attend meetings of the John A. Balch Chapter of the ITPA. The preceding installments appeared in the May 14 and the June 4 issues.

Mr. Smiddy walked all over the place, and Sadie was tagging close behind. I brought up the rear and must admit I was greatly relieved when we were back on solid ground, and I am making this admission for the first time.

A pathetic sight was a black "popoki" cat, thin and emaciated, who was so glad to see us, he followed us everywhere, and tried to enter the car when we left. He probably belonged to some family whose home was destroyed or who had to vacate their home when the volcano erupted.

How I wished for some food to give to the popoki, but we were many miles from a store and there was nothing we could do for him. I believe our company meant as much to the cat as food, he looked so forlorn.

In the evening the Pioneers assembled for a Japanese dinner and get-together, and what a good time we had! This time the chopsticks did not cause any concern. The food was delicious and tastefully served.

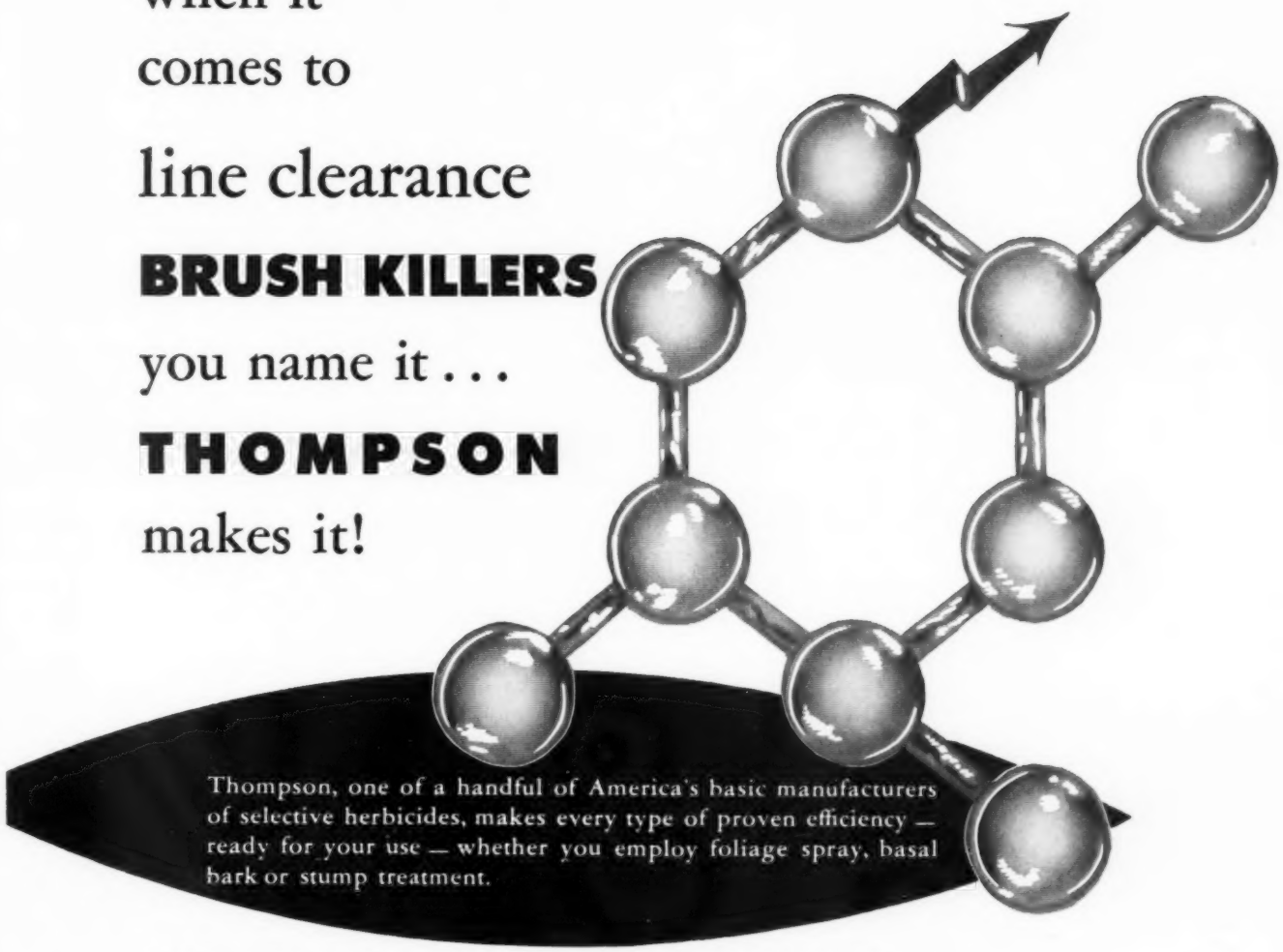
I don't remember the name of all of the food, but I do remember the rice wrapped in seaweed which was quite different from anything I have ever eaten. The cocktails before dinner whetted our appetites and we all dived into the food with gusto.

Manager Smiddy made a brief talk and then called upon me to address

(Please turn to page 52)

MAYME WORKMAN (center) with EVELYN SAKAMOTO (left), Maui chief operator, and SADIE D. HUNTER, Hawaiian Islands traffic manager, in pineapple field on island of Maui.

when it comes to line clearance **BRUSH KILLERS** you name it . . . **THOMPSON** makes it!



Thompson, one of a handful of America's basic manufacturers of selective herbicides, makes every type of proven efficiency — ready for your use — whether you employ foliage spray, basal bark or stump treatment.

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CONTROLLED VOLATILITY

BROAD SPECTRUM — PENTYL ESTERS

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BROAD SPECTRUM . . . or LOW VOLATILE . . . whichever you prefer, Thompson's delivers *more kill per gallon* because every gallon is fortified with a new and exclusive surfactant perfected in the Thompson laboratories. No other "creeping agent" duplicates its performance.

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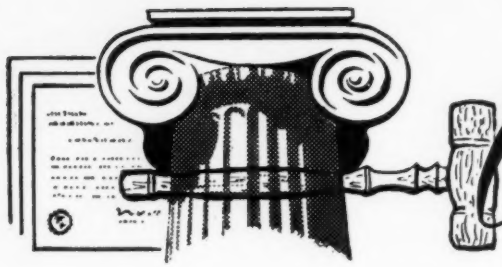

Courts and Commissions

New York Supreme Court Rules Bell Rate Case Reopened

The appellate division of the New York Supreme Court on May 25 cleared the way for the New York Telephone Co. to renew its bid for a $68,850,000-a-year increase in rates.

The justices decided, 3 to 2, to order the public service commission to reopen hearings on the company's rate increase request.

The commission had last August turned down the company's proposals to raise rates, and the following October denied a rehearing of the case. The company in December appealed to the supreme court (TELEPHONY, Dec. 18, 1954, p. 32).

The court handed down three separate opinions totaling sixty-one pages, a court record for one case.

The company had said it needed an increase of about 10 per cent in its gross revenues in order to meet rising costs and to attract new capital for expansion.

Its court action was based on the ground that the commission erroneously refused to receive evidence of the present value of company property actually used in the public service.

New York City and Abraham & Straus, a department store in the city, joined the public service commission in opposing the suit.

Arguments centered on whether a 1910 law or a 1952 statute should be applied in consideration of the company's petition.

A section of the public service law enacted in 1910 directed the commission to regulate rates "with due regard, among other things, to a reasonable return upon the value of the property actually used in the public service."

The commission contended that this concept had been outmoded and superseded by a 1952 amendment to the condemnation law instructing the commission to consider "capital actually expended."

Presiding Justice Sydney F. Foster asserted in the majority opinion that there was no connection between the two statutes. If the legislature wanted to change the meaning of the 1910 law, he said, "it would not have taken any such obscure and uncertain method of indicating its intent."

Justices William H. Coon and Daniel F. Imrie concurred.

Justice Philip Halpern, however, declared in a dissenting opinion that "it is clear from the latest expression of the legislature in 1952 that rate-making upon the basis of an original cost base meets with the approval of the legislature."

In a second dissenting opinion, Justice Francis Bergan said the 1910 law represented the "dead past."

* * *

Kent H. Brown, counsel to the New York Public Service Commission, will ask the court of appeals for permission to appeal from the decision of the appellate division in which the commission was directed to reopen consideration of the request of the New York Telephone Co. for an increase in telephone rates, Chairman Benjamin F. Feinberg announced on June 2.

The appellate court's decision was served on Mr. Brown on June 2 and he immediately took steps to carry the case to the court of appeals.

Missouri Company Asks to Buy Independents in Six Counties

The Mark Twain Rural Telephone Co., Bethel, on May 24 asked the Missouri Public Service Commission for authority to purchase certain mutual telephone companies in six northeast Missouri counties.

The company said it wants to install dial telephones in parts of Macon, Shelby, Knox, Lewis, Clark and Adair Counties. Mutual companies in those counties have agreed to sell, the commission was told.

The Mark Twain company said its action follows requests for dial service in areas now served by the mutual companies.

N. J. Party Line Use Bill Passes

A bill passed by the New Jersey Assembly on June 1 and sent to the state senate would make it a misdemeanor for anyone using a party line to refuse to relinquish the telephone to permit a fire alarm or other emergency call to be made.

Nebraska Commission Approves Sale, Bond Issue, Rates

The Nebraska Railway Commission has authorized the Virginia Co-operative Telephone Co. to purchase and operate the exchange property of the Virginia Telephone Co., it was reported on May 31.

On May 4, the commission held a hearing at Virginia during which it was brought out that the service of the former company was inadequate and that some potential subscribers were not being served. Property of the former company had been damaged extensively by a sleet storm and the company was without financial resources to restore it.

The new company will provide magneto service and will rehabilitate the telephone plant and equipment, including the metallicizing of rural lines. Stockholders will donate labor, and capital funds will be raised through the issue of stock and increased telephone rates.

The Bertrand Telephone Co. has been authorized by the commission to issue first mortgage sinking fund bonds in the aggregate principal amount of $6,000, it was also reported on May 31. The money so secured will be used to convert grounded rural lines to metallic.

The company will issue and sell to the Wachob-Bender Corp. its first mortgage sinking fund bonds for a period of 20 years at 5 per cent. They are secured by a supplemental first mortgage and trust deed dated June 1, 1955. These bonds are designated as Series "B" and are secured equally with Series "A" bonds outstanding in the amount of $37,000.

The commission likewise approved exchange rates and installation charges for automatic answering and recording equipment for The Lincoln Telephone & Telegraph Co. (reported on May 31).

The monthly rate for the basic unit of the automatic answering and recording equipment is $12.50, which includes one record. Extra records cost $2.50 each per month. Optional features are available at rates of 50 cents for headphone jack, $1.00 for

(Please turn to page 40)

LIFE OF TRADE

BY Thomas Hart Benton

Every salesman knows that the telephone directory is his best guide in breaking into any town with a brand new line.

It's an accepted fact now in business that telephone directory advertising and listings have become a "must." Yes, "you're in business, if you're in the telephone book."

Are you one of the telephone men who hasn't the time to capitalize on this basic advertising medium—your own telephone directory?

It's no longer necessary to be advertising solicitor, printer and publisher—in addition to being a good telephone man. Now you can turn over the mountain of details, involved in getting the maximum in revenue and good will out of your directory, to people who make a specialty of building telephone directories.

The Loomis Advertising Company is one of the fine organizations in the field. Why not call our nearest office. No obligation on your part, of course.

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Over 760 cities and towns in 20 states are served by 250 Loomis-built directories.

We have commissioned Mr. Benton to draw four scenes of American Life. A limited edition of 9 x 15-inch prints suitable for framing has been ordered. We think they offer a nice public relations touch to your telephone office decoration. To get your Benton print FREE, write Wesley H. Loomis III, 810 Baltimore, Kansas City, Mo.

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TELEPHONE TECHNOLOGY AND NATIONAL DEFENSE

Project Cocoa

Project Cocoa is the name we gave to the submarine cable communication system for the Air Force's new guided missile testing range which stretches more than 1000 miles from Cape Canaveral in Florida through the Bahama Islands to Puerto Rico.

Missile flight data gathered over this king-size firing range is transmitted through the underwater cable system. It was planned and put in operation for the Air Research and Development Command of the Air Force by Western Electric, prime contractor on the project.

You hear quite a lot these days about the important part telephone technology plays in the latest defense weapons such as radar bombing and fire control systems and guided missiles. But Project Cocoa is a good example of the application of telephone technology in the less dramatic but equally important field of communications systems for the Armed Forces.

Western Electric

MANUFACTURING AND SUPPLY UNIT OF THE BELL SYSTEM

Technicians testing Project Cocoa's submarine cable system somewhere in the Bahamas. The cable ship HMS Monarch, largest in the world, is in the background.

erase button and $1.00 for automatic stop. Installation charges are as follows:

Electronic secretary (basic unit)	$15.00
Headphone jack (if equipped when installed)	None
Headphone jack (furnished separately)	5.00
Erase button (if equipped when installed)	None
Erase button (furnished separately)	5.00
Automatic stop (if equipped when installed)	None
Automatic stop (furnished separately)	5.00

An inside move charge of $5.00 applies for moving the equipment from one location to another on the same premises.

The new service provides for the automatic answering of telephones, the transmission of a prepared message to the calling party and the automatic recording of a message from the calling party. It is available for use at all exchange and private branch exchange stations where selective ringing is employed.

The service is provided with the understanding that commercial power is furnished by the customer at his expense.

Oregon Commissioner Approves Independent's Stock Issue

The Oregon Public Utilities Commissioner on May 26 empowered the Sunnyside Telephone Co. to sell 100,000 shares of its common capital stock, $1.00 par, at not less than the par value ($100,000).

Sunnyside was authorized to use the proceeds for the retirement of its presently outstanding indebtedness of $17,349.74, and the balance for proposed expenditures for improvements and additions to its property.

Oklahoma Gets Emergency Party Line Use Law

Oklahoma's governor, Raymond Gary, signed a bill on May 26 making it a crime to refuse to surrender a telephone party line in an emergency.

The law also makes it illegal to get control of a party line by falsely claiming that an emergency, such as a fire, exists.

SW Bell Authorized $3,138 Rate Raise in Kansas

The Kansas Corporation Commission, on May 25, granted Southwestern Bell Telephone Co. a $3,138 a year increase in rates at Lecompton.

The new charges affect 162 subscribers. The commission chairman, Jeff Robertson, said the company is converting the Lecompton exchange to automatic operation.

The new rates are due to become effective in 30 days.

La. Company with REA Loan OK'd For Interim Rate Relief

The Louisiana Public Service Commission recently held a rehearing on the rate case of the Reserve Telephone Co. (an REA loan recipient).

Partial rate relief—for an interim period of six months—was authorized by the commission (TELEPHONY, Nov. 6, 1954, p. 34).

The commission's order of Sept. 23, 1954, previously had prescribed interim trial rates that were not based on an examination of the Reserve company's books and records.

That action was taken by the commission, it said, because "it was quite obvious that some relief to the applicant was necessary, but the entire plant at that time was in the course of construction and adequate records were not available to determine the total cost of the plant nor the ultimate number and class of subscribers."

Testimony at the recent rehearing indicated that accurate plant costs are still unavailable because final bills from contractors have not been received, the commission reported.

"It was further stated that even after all the contractor's invoices have been received no final conclusions can be reached because the plant is designed to provide service for several hundred subscribers in addition to those now being served," noted the commission.

The president of the company testified that at the present rates the operations result in an out-of-pocket loss and that further relief is necessary.

The commission's accounting staff made an attempt to examine the books and found that operation of the new plant started during August, 1954, and that the records are now kept in a temporary set of books. The unaudited information that the staff was successful in obtaining showed that for the four months ended Dec. 31, 1954, the operations resulted in a net loss of $689.

However, the commission stated, this information is far from conclusive because at the date the plant was placed in service, the company had about 535 subscribers and that number is constantly increasing. As of Jan. 31, 1955, there were approximately 675 subscribers and ultimately the company expects to serve some 1200 subscribers.

If the operations for a four-month period resulted in a net loss of $689, it is obvious that rates providing for a gross increase in revenues of only $90 per month will be inadequate to allow the company to recoup its operating costs alone, and there would be nothing provided for a return on the investment, the commission reasoned. "We (the commission) will, therefore, prescribe rates for a temporary period of not more than six months, that, it is estimated, will result in gross revenues at least equal to or possibly somewhat more than the operating expenses. At the end of the said six-month period it is anticipated that most, if not all, of the held orders for telephone service will be completed; the plant records will be complete, including all contractor's invoices; and some reasonable estimates may be possible at that time to determine the future annual operating revenues."

Rates approved by the commission for the Reserve company (extended scope service throughout the system) are as follows:

Reserve:	*Residence*	*Business*
One-party	$3.50	$7.00
Two-party	3.00	6.00
Four-party	2.50	5.50
Outside base rate area:		
One-party	3.90	7.00
Two-party	3.15	6.00
Four-party	2.50	5.50
Garyville:		
One-party	5.15	8.65
Two-party	4.15	6.65
Four-party	2.90	3.90
Lions:		
One-party	5.15	7.65
Two-party	4.15	6.00
Four-party	2.90	3.90
Belle Pointe:		
One-party	5.15	7.65
Four-party	2.90	3.90
Mt. Airy:		
Four-party	2.90	3.90
Extra line mileage outside base rate area:		
One-party	40 cents per ¼ mile	
Two-party	25 cents per ¼ mile	
Four-party	15 cents per ¼ mile	

Texas Independent Sells $3,000,000 of Stocks, Bonds

Southwestern States Telephone Co., Brownwood, Tex., sold 2 million dollars of bonds and 40,000 shares (1 million dollars) of a $25 par preferred stock to institutional investors, it was reported on June 2.

New York Life Insurance Co. took the bonds — first mortgage, 3⅝ per cent, due 1980. The preferred stock was divided at the rate of 30,000 shares to New York Life Insurance Co. and 10,000 shares to Mutual Life Insurance Co. of New York.

Chester H. Loveland, president, said proceeds from the combined financing will be applied to the company's con-

(Please turn to page 43)

Every Type of Telephone Cable From One Source... *ISE!*

Whether it's cable to serve a few portable telephones, or to build a vast network of communications—you can look to ISE, associate of International Telephone and Telegraph Corporation, for every cable need.

This worldwide service provides telephone cable of all types, in every gauge and quantity—for aerial, duct, submarine, and subterranean installation. Local exchange cable, long-distance audio frequency cable, multi-conductor carrier frequency cable, coaxial cable, special cable for television or other uses—ISE provides them all!

Every type offered must conform to the highest possible standards. Rigid production-testing guards every foot made for uniformity of dielectric strength, insulation resistance, and mutual capacitance. And behind all this quality control stand the worldwide IT&T research facilities!

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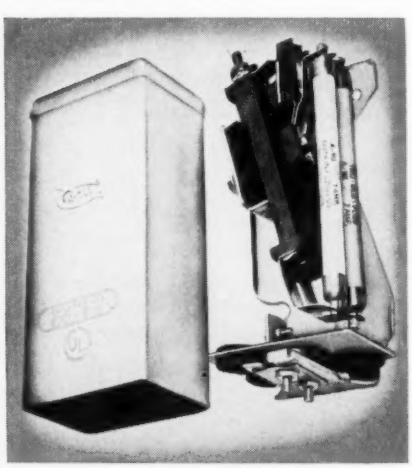
by C. J. Reynolds, Stromberg-Carlson

The few dollars you spend on *reliable* equipment today will be repaid a hundredfold in lower maintenance costs for years to come. Protect your investment with the double guarantee offered by Stromberg-Carlson. First, leading manufacturers build this equipment, and guarantee it. Second, because we recommend and sell this equipment to the telephone industry, we *also* guarantee its performance!

The Cook RO-9U sub-station protector

Protection plus—that's Cook Electric Company's type RO-9U sub-station protector.



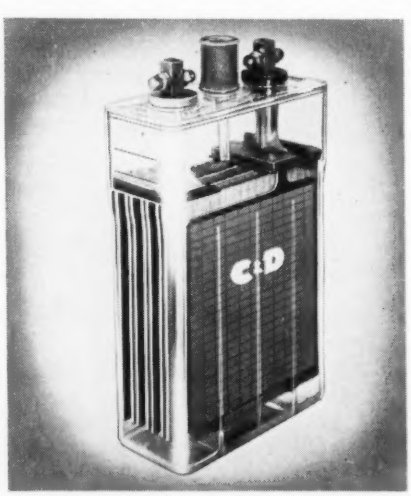
The most highly protective sub-station protector available.

This rugged unit consists of a heavy Bakelite base, two 7-amp. ceramic fuses, two famous Tru-Gap dischargers and two secondary dischargers which will ground a fault current when the fuses blow. These are all mounted on a sturdy steel bracket and covered with a heavy gauge, weathertight, zinc hood.

For the best in fused sub-station protectors, order the RO-9U.

Battery will live 25 years

A quarter of a century is the expectancy of an extra-life battery made by C & D Batteries, Inc. In full-float service, their PlastiCal (lead calcium grids) battery will serve your power needs faithfully —often well beyond its 25-year expectancy.



It'll be 1979 before you even have to *think* about replacing this extra-life C & D battery, if you install it now!

C & D Batteries' PlastiCell (high tensile, special alloy grids) battery offers reliable power supply at lower cost, with a life expectancy of 14 years.

You can get both of these C & D extra-life batteries from Stromberg-Carlson.

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ST Type Strand Cable Terminals Outstanding Design Features

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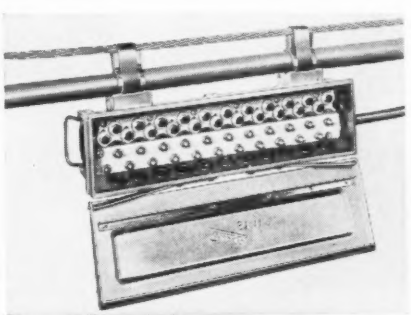
(3) Bronze terminal screws and cable molded in reinforced polyester binding post terminal shell having superior insulation resistance.

(4) Terminal heads gastight and reversible in Terminal.

(5) Protector units 506 for Cable Protector, 504 for Station Protector are separate assemblies. Parts may be renewed. Units provided with carbon to carbon air gap—alloy pellet and secondary metallic grounding.

Available with both plastic and lead stubs.



Eleven-pair terminal, like other type ST terminals, may have entrance at either end.

Made by Reliable Electric Co., "Reliable" identifies the quality—your Stromberg-Carlson representative is ready to supply it to you.

A Reliable Electric Specification No. R-100 is available.

Battery charger maintains constant voltage within ± 1%

To keep your batteries in good operating condition, and to prevent their deterioration, you need a **steady** charging voltage.

The Flotrol single-phase battery charger is an entirely automatic charger of the floating charge type. It provides an output voltage that is constant within ± 1%, from 10% of its rated load to 100%.

You save on maintenance, because the Flotrol has no moving parts. Its regulation is controlled by saturable magnetic reactors.

If overloaded, the Flotrol automatically changes from a constant voltage-type charger to a constant current-type charger. This protects both the battery and the Flotrol itself.

Quiet, efficient Model 1200-B Flotrol.

Compensation for variation in input voltage is automatic and practically instantaneous.

The operation of the Flotrol does not depend on the use of tubes, relays, motors or other expendable equipment.

For efficiency and economy, ask your Stromberg-Carlson representative about the Flotrol single-phase constant voltage charger.

Did you know . . . that the Stromberg-Carlson general catalog includes 105 pages of maintenance and construction supplies alone? You can do *all* your business "under one roof" and find the same quality and reliability in every item.

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struction program, which is estimated to cost 4.6 million dollars in 1955.

In its order, the commission said it recognized that at present rates the return on investment will be unreasonably low, but that recognition was given the fact that a substantial part of the plant as it exists today has been designed for future use. Said the commission:

"We are cognizant of the applicant's extremely high debt ratio with interest on the said debt at a rate of 2 per cent, and thus we consider that any finding of a rate of return at this time is unimportant for this applicant.

"The rates herein provided will be lower than those sought by the applicant in its original petition, but sufficiently higher than those previously authorized so as to result in estimated gross annual revenues of approximately $10,000 in addition to the estimated revenues at present rates.

"On the basis of the estimated increase in customers, the rates herein authorized will provide approximately $13,000 of additional gross revenues per annum, so that the ultimate gross revenues will be $23,000 higher than those provided on the basis of the present customers at the present rates."

Louisiana Commission Grants Company New Rate Schedule

The Louisiana Public Service Commission recently revoked an interim trial rate order (issued on Sept. 23, 1954) as not based on a complete audit of the books, and in a rehearing, approved the following rates for the East Ascension Telephone Co., Gonzales (TELEPHONY, Nov. 6, 1954, p. 34).

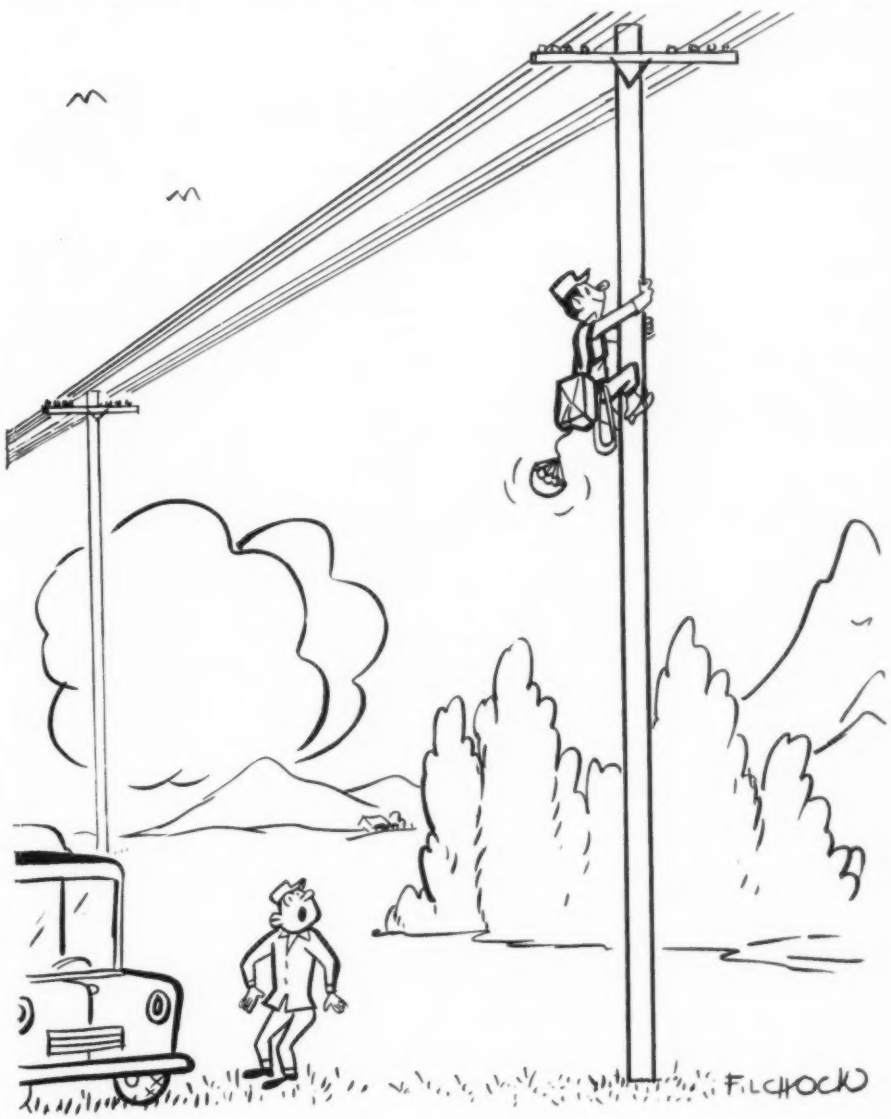
	Business	*Residence*
One-party	$7.00	$4.00
Two-party	6.50	3.50
Four-party	6.00	3.00
Eight-party rural	4.00	2.50

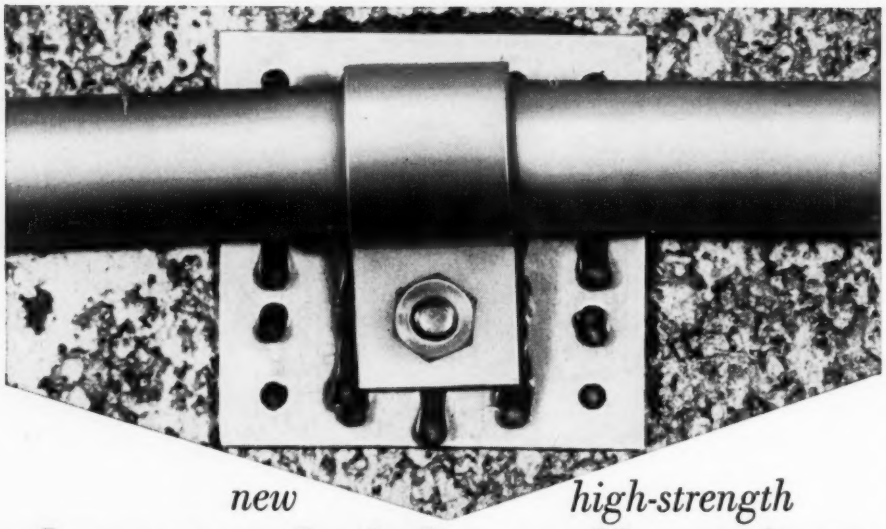
Extra exchange line mileage:
Per ¼ mile or fraction, airline measurement

One-party	$0.40
Two-party	0.25
Four-party	0.15

Rural eight-party mileage, per month:

No mileage charge shall apply within 2 miles, airline measurement from the base rate area boundary. Be-





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dependable adhesive

Service-proved PLACCO 1000

Ask us for references on the long-life holding power of Placco 1000. Other advantages are elimination of drilling; ease of installation in congested areas; low cost; quick setting; adhesion to porous and non-porous surfaces; installation indoors or out.

A complete line of wire and cable hangers
is available in either stainless or galvanized steel.
Send for bulletins on both adhesive and hangers.

PIONEER
LINCOLN BOULEVARD **LATEX & CHEMICAL CO.** MIDDLESEX, NEW JERSEY

When duct erection problems began to multiply . . .

OCT-O-DUCT Was The Best All-Around Answer

EXCESSIVE groundwater was just one of several special problems on this underground duct system at the new college campus at Goleta, Calif.

Future roads made special reinforcing in the trench necessary, and plans required running both telephone and power circuits side-by-side.

Soapstone OCT-O-DUCT was the easy, inexpensive answer to every problem. Many thousand feet of 3-inch and 4-inch duct were laid in the same trench.

OCT-O-DUCT's low price and low installation cost, combined with its outstanding electrical, chemical and mechanical characteristics, have made it first choice with contractors and construction departments in telephone and power utilities throughout the West.

Write for Specifications Bulletin 54A and for Installation Manual 54B.

SOAPSTONE DUCT COMPANY

110 Linfield Drive, Menlo Park, California

yond 2 miles, for each additional 2 miles or fraction thereof, a mileage charge of 25 cents will apply.

The commission stated that it appeared proper not to authorize permanent rates at this time, or to make a definite finding as to the rate base and reasonable rate of return, because the ultimate number of subscribers is still a matter of conjecture since more and more applications for service, particularly from rural areas, are being received.

The applicant had borrowed funds from the REA to rehabilitate its plant and cut over to dial. Initial installation of this equipment is now complete and service is being rendered, the commission stated.

Tennessee Independent Buys Another, Plans Conversion

The Millington (Tenn.) Telephone Co., Inc., has completed arrangements for the purchase of the Munford Telephone Co., which it has had under option for the past year, and was to begin operating on June 1, according to an announcement by W. S. Howard, president and general manager of the Millington company.

Mr. Howard said his company plans to convert the Munford territory to the most modern type of automatic system within a year.

Rochester Telephone Appoints Commercial Superintendent

F. Mark Clark, commercial engineer of the Rochester (N. Y.) Telephone Corp., has been appointed commercial superintendent, effective June 1.

Mr. Clark entered the corporation's employ in April, 1927, as a salesman. He became its sales manager in June, 1931. In 1945 he assumed the duties of commercial engineer in charge of marketing, rates and directory matters.

Approve Minnesota Purchase

Purchase of the Santiago-Blue Hill Telephone Co., Princeton, by the Sherburne County Rural Telephone Co. was authorized on May 25 by the Minnesota Railroad & Warehouse Commission.

OK Toll Raise for Pa. Company

A five-cent toll rate increase in a number of areas, authorized by the Pennsylvania Public Utility Commission, was put into effect June 1 by the Pennsylvania Community Telephone Co. (TELEPHONY, Apr. 16, p. 35).

Kansas Company Asks Rate Raise

The Kansas Corporation Commission on May 31 took under advisement an application of the Paxico Telephone Co. to raise rates.

BOOK REVIEW

SPECIFICATION FOR DRY CELLS AND BATTERIES, National Bureau of Standards Circular 559, 17 pages, five halftone illustrations, 19 tables, 25 cents. (Order from the Government Printing Office, Washington 25, D. C.)

The sixth edition of the American Standard Specification for Dry Cells and Batteries contained in this circular was approved as American Standard on Aug. 19, 1954. It supersedes the previous specification, which was approved Aug. 6, 1947, and published in Circular 466 of the National Bureau of Standards.

Within the past few years new types of cells have been developed to meet new industrial uses, and the available electrical output of better brands of the older types have been materially increased.

Successive editions of this specification have reflected these changes. This edition of the specification includes, for the first time, specifications on flat cells and new alkaline primary cells known as "mercury cells;" previous editions were confined to cylindrical Leclanché types.

Mercury cells were produced initially during World War II for military applications and later found commercial use principally in hearing-aid instruments.

Also, air-depolarized cells in miniature size that have been developed as replacements for other types of dry cells used in hearing-aid instruments are covered by the present revision of the American Standard.

(NOTE: Foreign remittances must be in U. S. exchange and should include an additional one-third of the publication price to cover mailing costs.)

OBITUARY

GUS H. RIXMAN, 75, Independent telephone company official of Hoyleton, Ill., died on May 28.

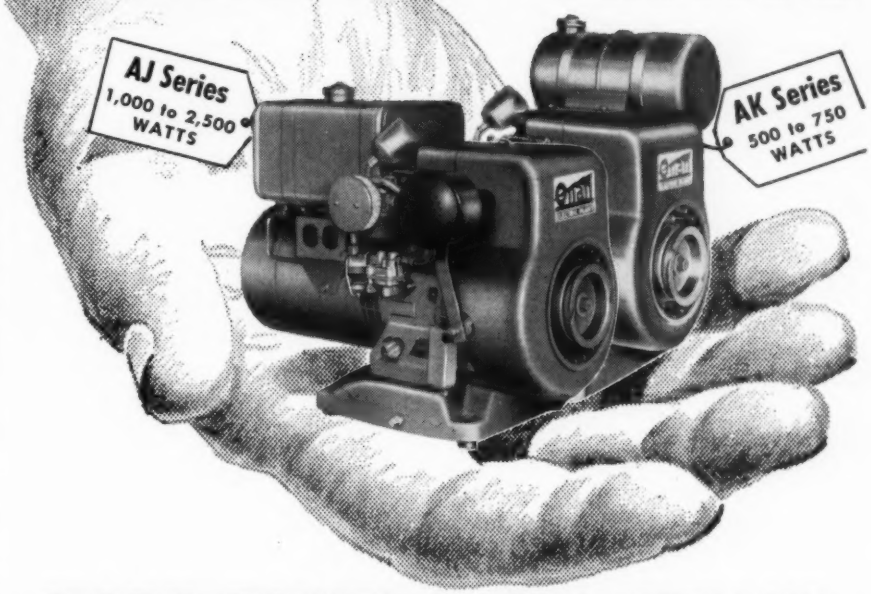
Mr. Rixman, with his brothers William and Fred, founded the Rixman Telephone Co. more than 55 years ago. He still held the office of vice president at the time of his death.

Surviving are his widow, the former Emilie Becker, and a daughter, Azalia. Four brothers preceded him in death.

"[The government can only help in economic processes.] The animation of economic progress must always come from the people themselves, through the structure of a competitive production and distribution system."—ROBERT W. ANDERSON, *Deputy Secretary of Defense.*

ONAN Announces Two New Series of

POWER PACKED ELECTRIC PLANTS



MORE POWER, LESS WEIGHT, SMALLER SIZE, LOWER COST!

2,500-watt unit weighs only 154 pounds! Gives you more power per dollar than any other 4-cycle electric plant.

Higher output in a smaller, lighter package give these new Onan units marked advantages for every type of service . . . portable, mobile, primary, or emergency standby.

Wherever you use *portable* electric plants, you can now put more cost-cutting electric light and power to work for you . . . at less cost. In *mobile* applications you can take along more power in less space . . . with less weight. In *primary* and *emergency* standby applications you get more power at less cost with all the Onan advantages of quick starting, long life and easy maintenance.

These new units are *completely Onan-built,* with Onan engines direct-connected to Onan generators in a single compact unit. The new, modern, *short-stroke,* single-cylinder, 4-cycle engines feature extra-large bearings and free-breathing intake and exhaust systems to give you thousands of hours of operation without major servicing. Generators are drip-proof and specially insulated for all-climate, all-season use.

Equipped with carrying frames or two-wheel rubber-tired dollies, Onan AJ and AK series electric plants can be taken anywhere . . . moved around easily on the job.

See your Onan distributor or write for new folder describing all 18 new models

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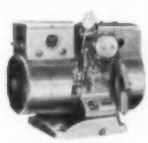
AK A.C. MODELS 500 and 750 watts, 115 or 230 volts.

AK D.C. MODELS (Battery chargers) 500 and 750 watts, 6, 12, 32 volts.

AJ A.C. MODELS 1,000 and 2,500 watts, 115 or 230 volts.



AJ D.C. MODEL (Battery Charger) 1500 watts, 32 volts

Onan ELECTRIC PLANTS

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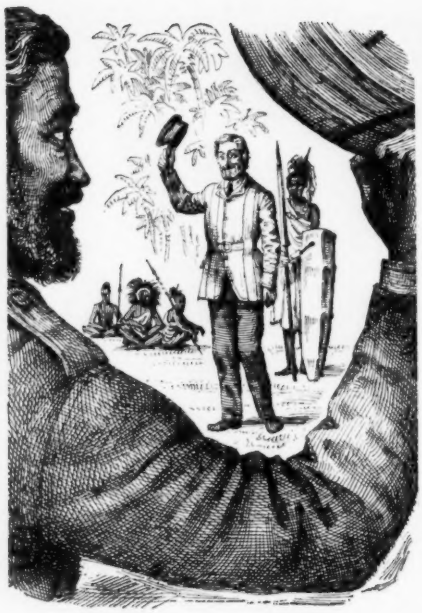

"Dr. Livingstone, I presume?"

In the early days, about the only way to gather news from the far corners of the world was by personal observation passed along by word of mouth or delivered by hand. That's how those four famous words came into being. Henry M. Stanley was sent by James Gordon Bennett, owner of the New York Herald, to find missionary David Livingstone. When he found him on November 10, 1871 at Ujiji, Tanganyika, Central Africa, he greeted him with "Dr. Livingstone, I presume?"

It was in this era in America that the first Hemingray Glass Insulators were made. Through constant research and development they have kept pace with the communication industries of the world.

There is an insulator design suitable for every communication pole-line requirement. Most jobbers carry complete stocks. Write for free descriptive catalog. Kimble Glass Company, subsidiary of Owens-Illinois, Toledo 1, Ohio.

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Illinois Commission Authorizes FES Rates for General Company

WITH AN increased demand for foreign exchange service (FES), brought about by the trend of people and businesses moving from metropolitan centers into less congested areas, telephone companies will be interested in a recent order of the Illinois Commerce Commission granting approval for the General Telephone Co. of Illinois to file and put into effect a schedule of rates for foreign exchange service.

The company applied for the rates on July 29, 1954, and following several hearings the commission issued its order on May 4. In view of the interest in foreign exchange service in the telephone industry, the commission's order is reproduced, in part, as follows:

"Evidence was offered by the company as to the nature and kinds of foreign exchange service, the cost thereof and the losses in toll revenue to the company resulting from the establishment of foreign exchange service. . . .

"The evidence shows that (1) the company . . . reviewed the tariffs of the Bell System companies, and several of the larger Independent companies; (2) the company, in providing foreign exchange service, sustains an unavoidable loss of toll revenue; (3) with the continuation of the trend for people and business to move from metropolitan areas into less congested areas, the company is receiving more and more requests for foreign exchange service; (4) foreign exchange service is not in accord with the general plan of furnishing telephone service and is purely a special service which may be established in lieu of standard toll service between two points; and (5) requests for foreign exchange service are for the most part from subscribers in territory served by smaller exchanges who desire foreign exchange service from larger exchanges of the metropolitan areas.

"The company in arriving at its proposed rates and charges for this service between two telephone exchanges assumes the use of a toll trunk line for such purpose and uses the following bases:

"(1) Average amount of use of a toll trunk of the company, which is determined from a study of the usage of all of the company's toll trunks.

"(2) Length of day regularly used for toll trunk engineering purposes, which is a factor of 7.5 and is the ratio of total day toll trunk usage to total busy hour toll trunk usage.

"(3) Average working days per week of 6.3 being the number of days during which the entire week's business could be handled since approximately only one-third of a normal day's business is handled on Sunday; and

"(4) Station-to-station rates per minutes which are determined from a rate curve based on the Intra Illinois Rate Table of Mileages and Corresponding Rates.

"Upon these bases the company determined that 3,096 minutes of usage per month should be used in developing a sliding scale of mileage charges for foreign exchange service.

"The company next developed such a sliding scale for airline distance 0 to 400 miles, inclusive, in keeping with the airline distances covered by the Intra Illinois Rate Table of Mileages and Corresponding Rates.

"A portion of the above-mentioned sliding scale, including the monthly charges based on a 5.5 average working day week, which is hereinafter explained, is shown as follows:

Airline Miles	Sta.-to-Sta. Rate Per Minute	Mo. charges 6.3 day week	Mo. charges 5.5 day week
0-3	$0.010	$ 30.96	$ 26.81
4	0.014	43.30	37.53
5	0.017	52.63	45.58
6	0.021	65.00	56.30
7	0.025	77.40	67.03
8	0.029	89.80	77.75
9	0.032	99.07	85.79
10	0.036	111.45	96.52
11-12	0.043	133.15	115.28
13-14	0.050	154.80	134.05
15-16	0.057	176.47	152.82
17-18	0.064	198.15	171.58
19-20	0.071	219.80	190.35
21-22	0.078	241.50	209.12
23-24	0.085	263.15	227.89
25-26	0.093	287.95	249.33
27-28	0.100	309.60	268.10
29-30	0.107	331.25	286.87
31-32	0.114	352.95	305.63
33-35	0.121	374.60	324.40
36-38	0.128	396.30	343.17
39-42	0.135	417.95	361.94
43-46	0.143	442.75	383.38
47-50	0.150	464.40	402.15
51-54	0.157	486.05	420.92
55-58	0.164	507.75	439.68
59-63	0.171	529.40	458.45
64-68	0.178	551.10	477.22
69-73	0.186	575.85	498.67
74-78	0.193	597.55	517.43
79-83	0.201	622.30	538.88
84-88	0.209	647.05	560.33
89-94	0.218	674.95	584.45
95-100	0.227	702.80	608.58

"The monthly charges are graduated on airline mileage steps which are confined to very short distances per step.

"The total monthly charge required by the company for the respective airline distances 0 to 100 miles, inclusive, is apportioned to two charges 'terminal Toll Loss' and 'Voice Channel.' 'Terminal Toll Loss' is the loss of toll revenue to the company when foreign exchange service is established and 'Voice Channel' is the facility furnished to provide foreign exchange service.

"It appears from the evidence that (1) the company does sustain an ap-

preciable amount of toll revenue loss in connection with the furnishing of foreign exchange service, not only from the loss of toll revenue from the normal exchange to the foreign exchange, but also from the foreign exchange subscriber who places via toll calls through the foreign exchange; and (2) the basis on which the company approached the matter of making rates and charges for foreign exchange service is sound and justifiable except for the following:

"(a) Subscribers to this service, for the most part are businesses and since '6.3 average working days per week' was developed on traffic offered by both residence and business subscribers, '6.3 average working days per week' should be reduced to '5.5 average working days per week.'

"(b) The application of the sliding scale of mileage charges as set forth in the company's proposed tariff is involved and would be difficult to explain to customers and it appears desirable that the sliding scale of mileage charges should be converted into a flat charge per mile per month, that can be applied to any airline distance.

"(c) Only the filed monthly rate of the foreign exchange for the class of service furnished shall be charged, rather than a portion or all of the filed monthly rates of both the normal and foreign exchanges as proposed by the company.

"(d) Only the service connection charge of the normal exchange for foreign exchange service shall apply, rather than the filed service connection charges of both the normal and foreign exchanges as proposed by the company.

"(e) The pole line and wire facilities monthly charge for the construction of facilities in connection with foreign exchange service in rural areas between contiguous exchanges, should be reduced from $3.50 per quarter route mile or fraction thereof to $3.00 per quarter route mile or fraction thereof and the wire facility only monthly charge should be reduced from $1.20 per quarter route mile or fraction thereof to $1.00 per quarter route mile or fraction thereof. If more than one foreign exchange subscriber uses these facilities the monthly charge should be prorated among those receiving foreign exchange service. In lieu of paying monthly costs of extending rural line facilities the applicant may elect to pay the actual cost of construction. The reason for these reductions is that the proposed charges were based on the company's construction unit costs of 1953 which were higher than the company's present equivalent costs.

"(f) Toll or long distance calls should not be placed or routed through the foreign exchange except in the case of a foreign exchange subscriber, in a rural area near the telephone exchange boundary line, who does not have normal exchange telephone service. If toll or long distance calls are made through the foreign exchange the normal exchange is entitled to the originating toll commission on such calls.

"(g) When costs of providing fa-

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on unproven preservatives

YOU'RE NOT GAMBLING when you use Creosote. Controlled tests have proved that pressure-creosoted poles last 3 to 5 times longer than most types of untreated poles. That's why Creosote is called the "30-year-plus preservative." To get this kind of quality and long life, always insist on clean poles, pressure-treated with Creosote—the proven preservative.

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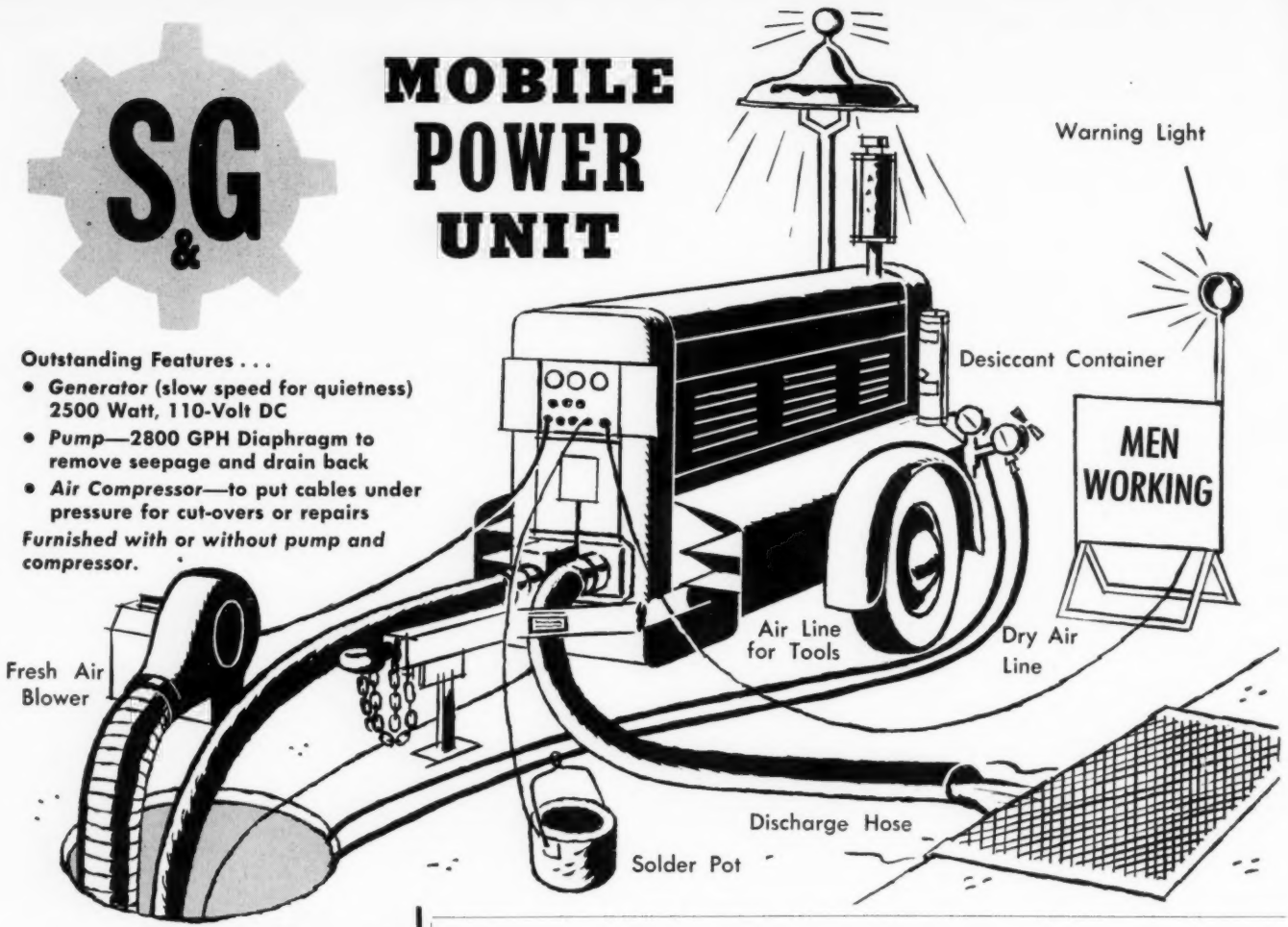
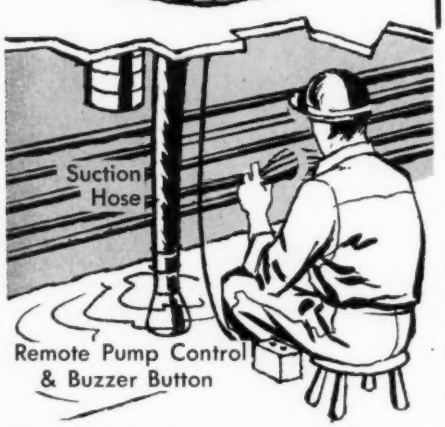


Outstanding Features . . .

- ***Generator*** **(slow speed for quietness) 2500 Watt, 110-Volt DC**
- ***Pump*****—2800 GPH Diaphragm to remove seepage and drain back**
- ***Air Compressor*****—to put cables under pressure for cut-overs or repairs**

Furnished with or without pump and compressor.



- 300-Watt floodlight illuminates working area
- operates soldering pot and iron, electric and air tools
- electric blower to ventilate manhole
- supplies dry air for cable cut-overs, flash testing, etc.
- diaphragm pump can be operated from manhole by push button control
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cilities for the furnishing of foreign exchange service exceeds one year's revenue from such service, the contract period may be proportionately extended beyond the minimum contract period of one year.

"It appears that, in substituting a flat rate charge per mile per month for the sliding scale of mileage charges proposed by the company, first, the number of average working days per week should be reduced from 6.3 (or 330.28 average working days per year) to 5.5 (or 286 average working days per year); second, from the reduced sliding scale of 'Monthly Charges' it is determined that from airline distances 0 to 100 miles, inclusive, the charges range downward from approximately $10 per mile, for the shorter distances, to approximately $6.00 per mile at the 100-mile point of the scale; third, it appearing that requirements for foreign exchange service will be for distances of 100 airline miles or less, it follows that the flat rate per mile per month charge should be determined from the reduced sliding scale of 'Monthly Charges' within those mileage distances; and, fourth, a review of present subscribers to foreign exchange service shows that of such subscribers the majority involved airline distances of less than 25 miles.

"It has accordingly been determined that the mean rate point of the sliding scale of mileage charges should be fixed at $7.50 per airline mile per month; this charge is considered reasonable compensation for mileage charges in connection with foreign exchange service and may be apportioned to 'Terminal Toll Loss' and 'Voice Channel'."

Among other provisions of the commission's order were the following:

(1) Foreign exchange service is a special service in which the subscriber has a demand for service over and above standard toll service for which a fair rate should be applied that will compensate the Company in providing such service.

(2) The normal exchange and the foreign exchange shall each be responsible for the provision and maintenance of all facilities within their respective exchange boundaries.

(3) The normal exchange shall handle commercial billing and collection matters in connection with foreign exchange service.

(4) The normal exchange should be permitted a monthly charge of $1.00 per month for furnishing and maintaining the station facilities, the originating toll commission on all toll calls made through the foreign exchange and the applicable mileage charges stated herein.

It is understood the company has filed the rates approved by the commission.

"I expect to see the day when large amounts of electric power come out of atomic energy directly, instead of using atomic energy as merely another means of heating water to produce steam."—EUGENE M. ZUCKERT, *former member, Atomic Energy Commission.*

IN THE NATION'S CAPITAL

Continued from page 19

scenery and props have changed. But the crystal ball content remains about the same.

Indeed, the "conjectural" quality of the old valuation process might seem almost as simple as a problem of bricklaying in comparison with trying to figure out (1) how much money will be necessary to keep investors interested in a given utility property in the light of inflationary trends, competitive investment attractions, etc., and (2) just how, *and for what reason*, a utility rate, which will yield that much return to the investor, would be a "just and reasonable rate" for the utility consumer. All this may not sound very simple. It certainly isn't.

North Carolina Stock Decision

Speaking of commission interference with managerial prerogatives, a rather novel decision affecting an Independent telephone company in North Carolina has come from the supreme court of the state. Readers may recall the case of the Carolina Telephone & Telegraph Co. (reported in 6 PUR3d 141) in which the commission ordered the company not to sell its common stock at less than $125 a share.

The reason for this unusual requirement was the fact that the value of the stock on the market was considerably in excess of the par value of $100 a share, or so the commission found in its opinion.

This meant that if the company had offered new stock at $100 a share to existing shareholders, their "rights" would automatically become very valuable and they could make a quick turnover in rights without even buying the new shares.

The company did not feel that the commission had any right to interfere with the offering at a price which the management felt was fair and sound —even if it were on the conservative side. Upon appeal, the North Carolina Supreme Court agreed with the company. The court opinion stated:

"Conceding solely for the purpose of this conclusion, that the North Carolina statutes vest in the North Carolina utilities commission the right and the power to fix at a point above par the price at which common stocks may be issued to stockholders under their preemptive right, such right may be exercised by the commission and it has jurisdiction only if the commission finds as facts (and such findings are supported by the record) that a price above par is necessary and appropriate in order to protect the public interest and further finds and points out specifically the public interest which needs such protection and finds and points out specifically wherein the fixing of the price above par will protect that public interest . . ."

The court accordingly sent the case back to the North Carolina commission with direction that it eliminate from its order the requirement that the company's stock be offered at a price of not less than $125 per share.

New FCC Commissioner

Once again President Eisenhower has gone to the state commissions for a candidate to the Federal Communications Commission. This is a trend which was noted by your correspondent early in the Eisenhower administration. Since then the pattern has been fairly consistent.

The new nominee to the FCC is Richard A. Mack, Florida Democrat and former chairman of the Florida Railroad & Public Utilities Commission. Mack, who is now second vice president of the National Association of Railroad & Utilities Commissioners (NARUC), will serve a seven-year term beginning July 1, succeeding FCC Commissioner Frieda B. Hennock.

No opposition to Mack's appointment is expected, and Senate confirmation will probably follow as a matter of form.

Mack is the third state commissioner to be named to the FCC. (The others are Chairman McConnaughey (O.) and Commissioner Doerfer (Wis.).)

All five members of the present Federal Power Commission now have former state regulatory commission backgrounds. Four were named by President Eisenhower.

The President has also named several ex-state commissioners to the Interstate Commerce Commission.

Telling the Independent Story

The national advertising program of the United States Independent Telephone Association—carried in *Time, U.S. News and World Report* and *Better Farming* (formerly *Country Gentleman)*—has attracted the interest of the general public, especially bankers and investment bakers, from whom Independent telephone companies must secure financing to carry on plant improvements and expansion to meet the great public demand for telephone service.

Contrary to the impression of many, the Independent industry as a whole, plays an essential role in the nationwide telephone system, and the Independents have originated or adopted many of the new developments and

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you can always depend on. For Klein tools and equipment are designed better for your jobs—made of the finest materials—individually tested and inspected. Look for the familiar Klein trade-mark—serving the electrical industry "since 1857."

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Write for your free copy of the Klein Pocket Tool Guide Today!

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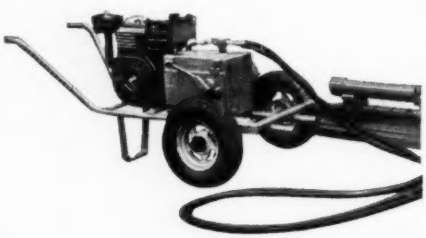
"Pipe installation time and labor costs cut about 50% with Greenlee Pipe Pusher"

That's what a leading eastern utility reports as its experience with a GREENLEE Pipe Pusher on jobs as shown above. Let this remarkable tool make big timesavings and reduce job costs for you, too. With the GREENLEE Pusher, *one* man pushes pipe *under* streets, walks, floors, railways, lawns, etc. Eliminates extensive trenching and time-consuming tearing up, tunneling, backfilling, repaving. Often pays for itself on the first few jobs. Two models: No. 790 for pushing ¼" to 4" pipe; No. 795 for larger pipe and concrete ducts.



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equipment designed to provide up-to-date telephone service.

It is good that the industry, through its national association, is telling the public about the accomplishments of the Independent segment, so that it can take its rightful place in the telephone business in the eyes of the American public.

One other development which no doubt will further strengthen the Independent industry is the trend toward consolidating a number of smaller Independent companies, which cannot stand on their own feet economically, into one company, thereby making a sounder economic and operating unit.

While this will reduce the number of Independent companies somewhat, such a consolidation program should have a beneficial effect on the industry, still leaving it diversified and composed of thousands of strong operating units.

Speaking of consolidations, the *Wall Street Journal* recently commented on rumors that there has been merger talk between the two largest Independent groups—General Telephone Corp. and Theodore Gary & Co.

The operating subsidiaries of these two systems comprise about 30 per cent of the stations in the Independent industry, located in 31 states. Each has a manufacturing unit—General Telephone Co. with Leich Electric Co., and the Gary Group with Automatic Electric Co.

More Radio-Telephone Channels Serve Ships in Northwest

Growth of the FM radio-telephone service to ships in coastal waters of British Columbia and adjacent waters in Washington has necessitated the assignment of additional frequencies.

Now, in place of four channels, there will be six. The new arrangement will permit ships using the service to travel freely across the international boundary, and retain radio-telephone contact with the regular land telephone networks, without having to have more than six channels on their sets.

Since FM radio-telephone service was inaugurated on the coast, frequencies have been allocated according to a 60-kilocycle plan — in other words, the frequency assignments are only 60 kilocycles apart.

Now, however, in order to come into line with the frequency assignment plan as laid down by an international maritime treaty which was not in effect at the time of the original assignments, frequencies are being assigned on the 100-kilocycle plan—that is, they are 100 kilocycles apart.

In order to avoid conflict between Canadian and American frequency assignments, the North-west Telephone Co., Vancouver, B. C., and the Pacific Telephone & Telegraph Co. have submitted a plan to the regulatory bodies in their respective countries.

The plan has been approved in principle by the Canadian Department of Transport and by the Federal Communications Commission.

The plan calls for 12 frequencies (six transmitting and six receiving) for six channels to cover British Columbia coastal and adjacent waters in Washington.

The two telephone companies have agreed to consult each other in the matter of placement of stations and the assignment of frequencies so that the operation of U. S. stations will complement and augment service provided by Canadian ones.

The net result of the frequency change will be as follows:

(1) Ships in these waters will be able to connect to commercial (land) telephone facilities on either side of the border without having to have more than a six-channel set.

(2) A large number of North-west's present FM subscribers, both land and ship stations, will have to change the crystals on their sets. This will involve all those presently working through marine terminals. These marine terminals are as follows:

Holberg	New Westminster
Alert Bay	Sumas
Hardwicke Island	Victoria
Campbell River	Nanaimo
Powell River	Parksville
Horseshoe Bay	Mt. Horne
British Properties	Tofino

(3) The North-west Telephone Co. will have to change its marine transmitting and receiving stations to the new frequency assignments.

Chestertown's C&P Workers Get Vail Award for Disaster Aid

Chesapeake & Potomac Telephone Co. employes, of Chestertown, Md., at a recent dinner in their honor, were presented a bronze Vail group award in recognition of their courage and devotion to duty in furnishing vitally needed telephone service during and after a series of munitions plant explosions at Chestertown last July.

James B. Morrison, C&P president, presented a certificate of the award to Chestertown C&P manager, James V. Matt, who accepted on behalf of local employes. A bronze plaque commemorating their "acts of noteworthy public service" was unveiled.

>> In 1954, 7,700 pedestrians were killed in U.S. traffic accidents.

SMALL COMPANY PROGRAM

Concluded from page 30

Suggesting revisions in the accounting system prescribed by the FCC.

Working with the REA in suggesting changes in its procedure of granting loans to telephone companies.

Mr. Roberts also reviewed the USITA national advertising program which, he said, is producing many indirect beneficial results for all Independent companies. He urged support of the program by Independent companies and suppliers.

Dan L. Ault of Monroe, Wis., engineer of the United Telephone Co., with the use of motion picture slides, told of his company's use of subscriber carrier to reach sparsely settled rural areas and to serve more subscribers on existing plant.

The convention adjourned following an address by Frank Renshaw of Washington, D. C., assistant chief of the Telephone Operations and Loans Division of the Rural Electrification Administration. He explained the features of the REA telephone loan program.

The convention re-elected the following directors: H. G. Allen of Tomah; D. E. Peterson of Medford; B. H. Piepmeier of Black River Falls; G. A. Rutenbeck of Milwaukee, and E. B. Samp of La Crosse.

New members named to the association's board of directors were L. J. Robertson of Platteville, and F. H. Schafer of Clintonville. They replaced T. H. Moran of Madison, who resigned, and W. E. Lawton of Viroqua, who has retired from telephone work.

Other members of the board include L. M. Lamkins of Manawa; Karl Mess of Phillips; G. F. Moser of Sharon; Paul R. Parsons of Rhinelander; J. E. Welsh of Mt. Hope; Wyman W. Wiswell of Elkhorn; J. F. Benjamin of Cumberland; A. H. Bowden of Almond; H. B. Flower of Wisconsin Rapids; R. H. Keating of Wausaukee; H. P. Siebken of Madison, and T. H. Sanderson of Rio.

The directors elected the following officers: president, Mr. Benjamin; vice president, Mr. Allen; secretary-treasurer, Ray J. Riordan of Madison.

"There is no such thing as absolute security, and any workable security must be linked with risk taking. In other words, to shy away from risk is to take the greatest gamble of all, as it means not only the loss of security but of freedom as well." — *Excerpt from New England Letter, published by The First National Bank of Boston.*

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Bi-Seal is accepted by the Technical Standards Committee (telephone) of the Rural Electrification Administration for splicing thermoplastic insulated, thermoplastic sheathed telephone cable. As per REA STANDARD PC-2 and PC-3.

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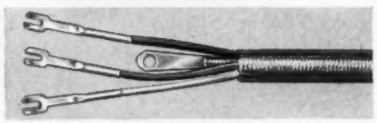

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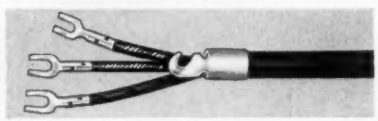

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Take your choice—Neoprene, Nylon or Cotton. They're all high quality cords made in accordance with Runzel high standard of quality. We carry a large stock of cords for every purpose.

Our geographical location means QUICK SERVICE.

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Cord and Wire Co.
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THE OPERATOR'S CORNER

Continued from page 34

my fellow Pioneers. Since I did not prepare a talk nor use any notes, I do not remember what I said, but you may be sure I extended greetings on behalf of their fellow Pioneers on the Mainland. I related a few anecdotes, too, which they seemed to enjoy.

The Pioneers presented me with a beautiful wooden tray, typical of the island, and lovely beads with earrings to match, made from seeds gathered on the island. The islanders are very adept at making things from local raw materials, and they are all very beautiful.

Two of the Pioneers drove 60 miles to attend the dinner, a real tribute to their guest and an exemplification of the true Pioneer spirit.

All too soon it was time to say farewell to my good friends on the Island of Hawaii. The evening passed very quickly, but there was more pleasure in store for me as Lillian Pererro was taking Sadie and me for a trip around the island the following day.

When the party was over, Mr. Smiddy and his charming wife stopped at the hotel and we had a nightcap. Sadie and I repaired to our room at the Hilo Hotel after bidding them goodnight, as Sadie had some unfinished business to complete before morning which had to be placed in the mail the following day.

The next morning, Lillian Pererro came to the hotel and we had breakfast together and shortly thereafter we were on our way in a lovely station wagon. Our destination was the "Kono Inn," a beautiful spot on the ocean.

After a lot of sightseeing along the way, we arrived at the inn and were soon comfortably located in a beautiful room facing the ocean.

What a vista—fishing boats in the distance, the blue sky above, and the aqua water below. It was heavenly!

We didn't waste any time in getting dressed and going downstairs where we enjoyed some refreshments. Sadie had a colloquy with the waitress and was I surprised to hear the orchestra leader announce, "We are doing the next number 'The Little Brown Gal,' for Mayme Workman."

This is one of my favorite island songs. How news gets around! After doing a little more sipping, I heard, "We are doing 'The Wedding Song' for Mayme Workman." This is a beautiful island song and the tenor solo is "out of this world."

After all of this attention, we were ready for a good steak dinner—and we had it. Adjacent to our table was a group of tourists and they were singing all of the familiar old-time songs.

I stood it as long as I could and then I just had to harmonize with them. One of the group came to our table and invited me to join in their singing. That was all I needed!

Between songs they informed me they were from Kansas, mostly Wichita, and I in turn told them I was from their neighboring state, Illinois. That did it!

From then on I don't think we missed *one* of the good old-time tunes. By the time I returned to our table, the steak was a little cold and it was time for dessert, but I didn't mind. I had a wonderful time.

The following morning, Thursday, Apr. 21, we did a little sight-seeing around the Kono Inn and vicinity. Then we were on our way. It was a beautiful day, the air was balmy and I soon removed my suit coat, sat back and relaxed and enjoyed the beautiful scenery.

We enjoyed a delicious lunch at the Volcano House. Saw "George" who is past 90, but hale and hearty. They say he pours a bottle of gin in the volcano every so often to keep "her" in a happy frame of mind.

We visited the "City of Refuge," an interesting place. They say that in the olden days if an islander committed a crime and he could get to this city he could not be removed.

We stopped at the Hawaiian National Park and viewed a wonderful picture of a volcano in eruption. The picture was awe-inspiring. What a sight it must be to see an eruption in progress!

We stopped in "St. Peter's Church on the Sea." It was so tiny it looked like a doll house. According to an old custom, we went in and made a wish.

On our return, we stopped at the telephone exchange and had a pleasant visit with the chief operator and her operators. This office will soon be converted to dial.

The time had arrived to start to the airport for our return trip to the Island of Oahu where I was scheduled to attend the review of the meeting of the board of directors of the Hawaiian Telephone Co., in Honolulu that evening.

Lillian was a wonderful guide and traveling companion and we bade her a regretful Aloha as we boarded our plane.

The review of the board of directors meeting was so unusual and impressive, I hope to do it justice in the next

article on my visit to the Islands, so will close by stating, Reiko Kimura met Sadie Hunter and me at the airport, took her to the telephone exchange and me to The Edgewater Hotel so that I might prepare for the evening's activity. "Pau" (enough) for now.

Installer Cited for Attempt to Rescue Boy in Fire

Gordon Grantman, of Two Rivers, Wis., an installer-repairman for the General Telephone Co. of Wisconsin, has been cited for his heroic attempt last December to rescue a three-year-old boy from a burning home. The citation to Mr. Grantman was made at annual convention of the Wisconsin State Telephone Association, held on May 4 and 5.

The award was made by the Badger Chapter of the Independent Telephone

President-elect J. F. BENJAMIN of the Wisconsin Telephone Association, presenting award to GORDON GRANTMAN.

Pioneer Association which each year cites an employe of an Independent telephone company in the state for an act of personal heroism.

The act which earned Mr. Grantman the award occurred last Dec. 9. He and a fellow installer-repairman, Clarence Oestreich, had just completed the installation of a telephone in a home about three miles west of Two Rivers. As the two men left, they noticed smoke pouring from a nearby home where an oil stove had exploded.

Mr. Grantman rushed to the burning home of Mrs. Robert Kleman who was fleeing to safety with her 16-month-old son, Michael. The woman told Mr. Grantman that another son, three-year-old Jackie, had run back into the flaming home after breaking from her grasp.

As Mr. Grantman entered the smoke-laden house, he heard the cries of the little boy. Guided by the sound of the youngster's voice, he crawled toward the boy on hands and knees. However, flaming oil from the exploded stove covered the floor, finally forcing Mr. Grantman to give up his rescue effort and retreat outside the house. The boy perished in the fire.

Mr. Oestreich, in the meantime, had rushed back to the telephone truck for a fire extinguisher. He fought the flames until the extinguisher was empty, then ran to a nearby home for water buckets.

After Mr. Grantman abandoned his valiant attempt to save the Kleman boy, Mr. Oestreich drove him back in the truck to Two Rivers for treatment of burns to Mr. Grantman's hands and arms.

A second unsuccessful effort to rescue the boy was made by Undersheriff Alvin Gill. The flames also drove him back from the house, causing burns to his hands and arms.

"A healthy company, making a wide range of products, profitably, in a growing economy, offers the strongest possible kind of insurance as to employment stability and opportunity."—E. G. GRACE, *chairman of the board, Bethlehem Steel Co.*

ACORN INSULATED WIRE

Acorn wire has meant quality since 1914. Neoprene jacketed for drop, distributing and bridle wire. Acorn plastic insulation for inside, jumper and cross connecting wire. Specify Acorn.

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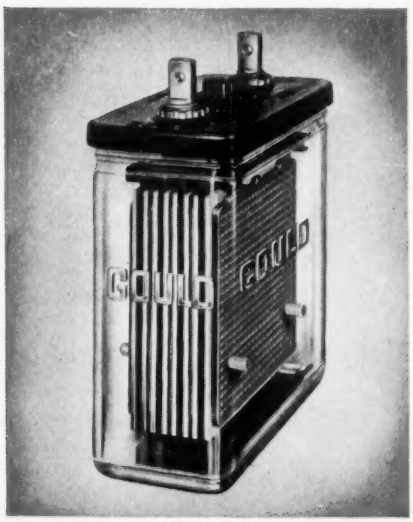

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At the ceremony marking the installation of Detroit's one-millionth telephone on Apr. 28, CLIFTON W. PHALEN, Michigan Bell president, right, hands a new dime to EUGENE I. VanANTWERP, member of the Detroit Common Council, who placed the first call over the instrument. Looking on is CHARLES G. OAKMAN, former United States Senator from Michigan and now general manager of the Detroit-Wayne Joint Building Authority.

Set Up Highway Emergency Telephone Number in California

To the California Highway Patrol, an emergency has always meant just that—an emergency.

But the patrol is discovering that it can mean other things to other people, and the difference sometimes means delays in meeting real danger situations.

It all started recently when Zenith 1-2000 was set up as a special telephone number to speed the reporting of accidents and other emergencies on California's highways (see cut).

Motorists have been urged to ask the operator for that number—anywhere in the state's unincorporated areas—to pass along word of a bad accident, damage or obstructions to highways, a fire along the road. Anything, in short, which spells emergency.

Only real highway emergencies occurring outside city limits are to be reported on Zenith 1-2000. Other calls are to be placed to the patrol's regular local number which is listed in the telephone directory.

"The reason is a simple one," Highway Commissioner B. R. Caldwell said. "A person calling Zenith 1-2000 will be connected directly to one of the patrol's emergency radio dispatch stations.

"These stations were set up to handle emergencies, and if the telephone lines are tied up by routine

New central office building of the Hershey (Pa.) Bell Telephone Co., housing recently-installed 1,400-line, 3,500-station Automatic Electric system. Growth of the Hershey system, dating back to 1927, has been steady, keeping pace with the increase in demand for telephone service. Starting 28 years ago with a three-position manual board and 300 lines, the company had grown to 700 lines by 1938 and 1,100 lines by 1950, including a six-position toll board.

calls, it could mean a delay in sending help to a bad accident."

Zenith 1-2000 was selected by the patrol and Pacific Telephone & Telegraph Co. as the emergency number because the letter "Z" and "Operator" are in the same spot on the dial. If an excited motorist makes an error, or tries to dial the number, the first twist of the dial will summon the operator.

There is no long distance charge to the caller even though the dispatch center may be many miles away.

Bell Laboratories Announces Seven Executive Appointments

Dr. James B. Fisk, vice president in charge of research of Bell Telephone Laboratories, has been elected executive vice president effective June 1, Dr. M. J. Kelly, president of Bell Laboratories, announced on May 24.

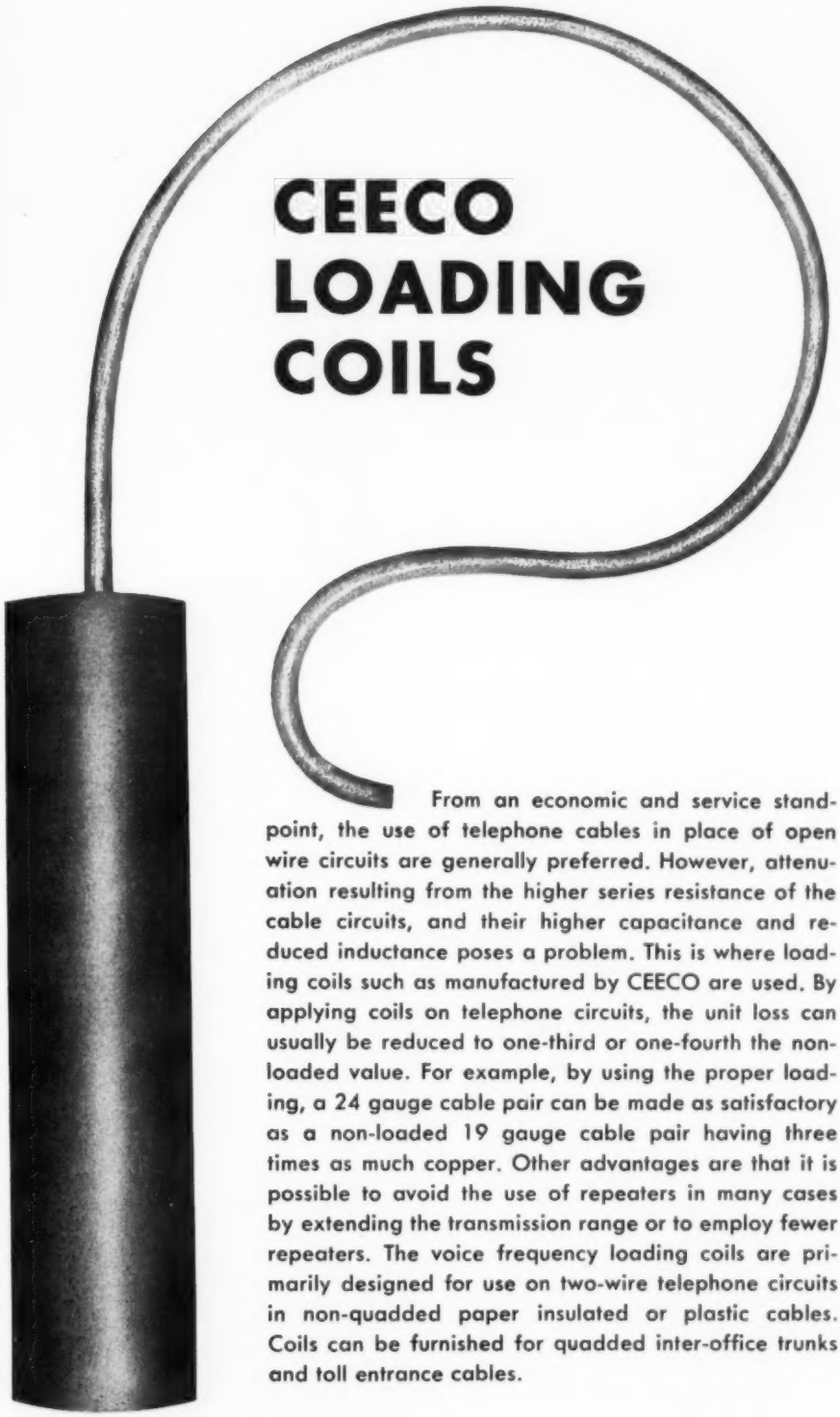
In his new post Dr. Fisk will be directly responsible for all technical activities of Bell Laboratories, as well as continuing his present responsibilities in charge of research.

Also effective June 1, Estill I. Green, director of military communication systems at Bell Laboratories, has been elected vice president in charge of systems engineering.

At the same time five new general department heads have been named. In the expanded systems engineering area, M. L. Almquist has been appointed director of systems engineering I; P. W. Blye has been named director of systems engineering II, and F. J. Singer, director of systems engineering III.

J. A. Morton has been appointed director of device development under the vice president in charge of switching and transmission developments. Also, R. R. Hough has been named director of military electronics development II in the area of work for the armed forces.

You can reduce unit loss and use of repeaters with



CEECO LOADING COILS

From an economic and service standpoint, the use of telephone cables in place of open wire circuits are generally preferred. However, attenuation resulting from the higher series resistance of the cable circuits, and their higher capacitance and reduced inductance poses a problem. This is where loading coils such as manufactured by CEECO are used. By applying coils on telephone circuits, the unit loss can usually be reduced to one-third or one-fourth the non-loaded value. For example, by using the proper loading, a 24 gauge cable pair can be made as satisfactory as a non-loaded 19 gauge cable pair having three times as much copper. Other advantages are that it is possible to avoid the use of repeaters in many cases by extending the transmission range or to employ fewer repeaters. The voice frequency loading coils are primarily designed for use on two-wire telephone circuits in non-quadded paper insulated or plastic cables. Coils can be furnished for quadded inter-office trunks and toll entrance cables.

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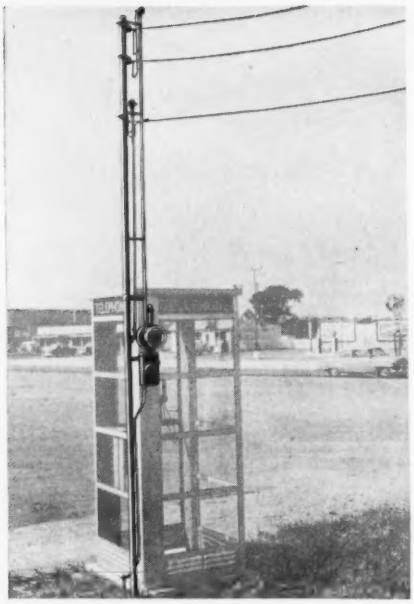

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TOLEDO 4, OHIO

IMMEDIATE DELIVERY

J. R. Skidmore New Leich Illinois Representative

Leslie H. Warner, president, Leich Sales Corp., announces the appointment of James R. Skidmore to represent Leich in the state of Illinois. His headquarters will be in Decatur.

Mr. Skidmore is to replace Jack Quirk, who has been traveling this territory, but has resigned in order to start his own business.

J. R. SKIDMORE

Mr. Skidmore is well acquainted with the Illinois territory, since he was formerly assistant to the manager of the central district where he expedited orders and handled correspondence for telephone companies in Illinois.

Previous to his career with Leich, Mr. Skidmore was supervisor of communications for the Buick motor division of the General Motors Corp. A graduate of Spring Hill College, Mobile, Ala., Mr. Skidmore spent two years in the Army Corps of Engineers and was stationed for some time in Korea.

Grymes Made Vice President In Koppers Wood Preserving

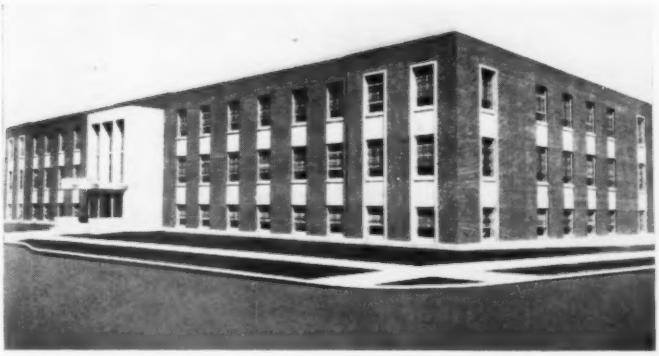
Douglas Grymes Jr. has been appointed a vice president in the wood preserving division of Koppers Co., Inc., it was announced in Pittsburgh on May 28 by Fred C. Foy, president of Koppers.

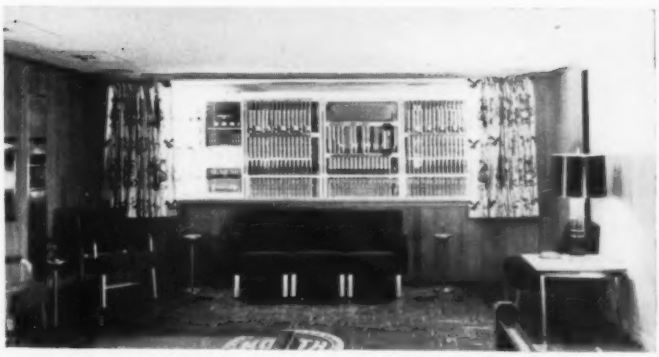
Since December, 1954, Mr. Grymes has been executive assistant to Walter P. Arnold, vice president and division general manager, while retaining the duties of division sales manager which he assumed in July, 1953. He will continue to retain these duties.

A native of St. Louis, Mo., the newly appointed divisional vice president attended Spring Hill College in Alabama. Upon graduation he joined the Ayer & Lord Tie Co., which later became a part of Koppers wood preserving division.

After sales assignments in Houston, Texarkana, Dallas and Pittsburgh from 1937 to 1948, he was made Pittsburgh district sales manager for the division. In 1952 he became the division's manager of railroad sales, and he was appointed an assistant vice president in the division in June, 1954.

Fifty employes of Northern Ohio Telephone Co., Bellevue, were honored at the company's second annual employe recognition party held recently. More than 400 employes were present at the ceremony, at which service pins were presented to those who have reached five years, or multiples of five years, with the company. This year's awards brought this number to 288, or a total of 3,355 years of service. COL. WILLIAM C. HENRY, president and general manager, made the presentations. Above: General Commercial Superintendent E. F. WOODWARD presents President Henry with a 30-year emblem.





LEFT PHOTO: North Electric Co.'s new administration building, which was opened officially early in May with an "Open House" attended by some 3,200 employes, their families and neighbors. RIGHT PHOTO: A feature of the African mahogany paneled lobby of the building is this North PABXJ installed as the operating board for the company's 280 telephones.

North Opens New Building With Two Open Houses

Official opening of North Electric Co.'s new administration building in Galion, O., was celebrated with "Employees' Day" on May 14, and "Neighbors' Day" on May 15. Some 3,200 guests were guided through the building by a corps of 60 North employes acting as hosts and hostesses.

Hans Kraepelien, president, headed a reception line of company officers who greeted visitors in a large reception and refreshment tent adjoining the building.

The new office, a three-story brick and concrete structure, houses 398 members of the company's administrative and engineering staff. It adds 43,000 square feet of floor space to North's Galion plant, which produces North All-Relay switchboards and other telephone equipment, as well as industrial automation and electronic components.

Necessitated by accelerating expansion of the 70-year-old company's activities during the past few years, the new building replaces a half dozen smaller buildings, and permits concentration of all North administration activities under one roof.

Architecture is simple, yet attractive. It is typical of the modern approach to industrial construction, which calls for combining efficient functional design with beauty. The front entrance, of aluminum-enclosed glass framed in limestone panels, opens into a spacious, two-story wood-paneled lobby.

One of the interesting features of the lobby is the company switchboard, installed behind a glass panel. It is a North PABXJ, made at the Galion plant, but leased from the Northern Ohio Telephone Co. It is a 500-line board equipped with 200 lines and 280 stations.

Office walls and partitions are of sound-absorbent cement block, painted in attractive two-tone color schemes. Ceilings are finished in white acoustical plaster. Large unpartitioned areas are separated into semi-private offices

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- 4800 Series Magneto Wall Telephones, Page 124 Catalog #11
- F817 and 9817 Series Telephone and any frequency with or without dial, Page 122 Catalog #11
- Desk Set Boxes, Common Battery and Magneto, pages 5 & 6 Catalog #11
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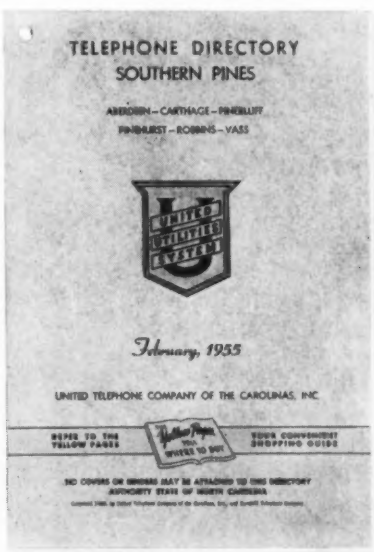

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by metal and glass dividers. Floors throughout are vinyl asbestos; lighting is fluorescent. The building is completely air-conditioned.

In addition to housing North's executive, purchasing, engineering, production control, marketing, drafting and bookkeeping offices, the building also houses a technical library, training

Just before they "opened house" President HANS KRAEPELIEN (left) and Vice President LLOYD BENDER of North Electric Co. received the keys to the company's new administration building from Architect Charles Conklin.

room, photographic darkroom, storage vault, sections of the development engineering division with sound-proof testing room, blueprinting and duplicating equipment, and tabulating machinery.

Another addition to the Galion plant, 55,000 feet of manufacturing space is being started this month. Completion is scheduled for late this year.

Ansonia Adds Two New Members To Sales Organization

The Ansonia Wire & Cable Co. has appointed A. W. Schell and J. E. Annable to augment its field sales force.

Mr. Schell, who has over 40 years experience in the Independent telephone field, will service distributor and customer accounts in Virginia, North and South Carolina and northern Georgia from headquarters at Charlottesville, Va.

Mr. Annable, with 10 years experience in power and communication fields, will service distribution and customer accounts in Washington, Oregon and California from his headquarters in Edmonds, Wash.

BOOK REVIEW

"IDEAS ON LIBERTY," a collection of essays, gathered by The Foundation for Economic Education, Inc. (FEE), Irvington-on-Hudson, N. Y.; 96 pages. Price, 50 cents (less for quantity orders—up to 20 cents each for 25 copies or more). Order direct from the FEE.

The FEE has gathered 19 essays relating in either a specific or a general way to the subject of "Liberty." Article headings include:

"How to get action."
"Lincoln didn't say it."
"Equal rights."
"In an ideal America."
"Religion in American life."
"Freedom in transactions."
"More machines mean more jobs."
"Who is a libertarian?"
"Inequality of wealth."
"Causes of depression."
"What determines prices?"
"Competition."

The FEE states that if this journal is well received, it will be issued five or six times annually and will replace the smaller pieces formerly issued.

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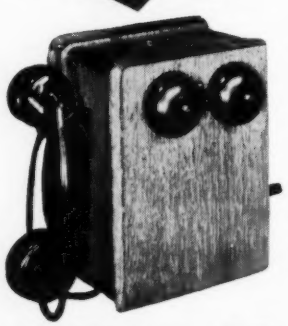

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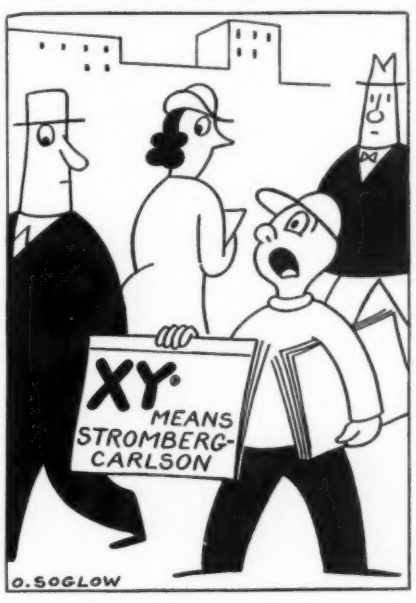

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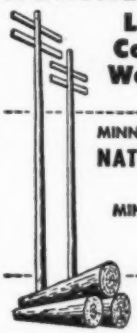
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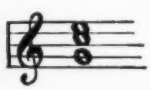

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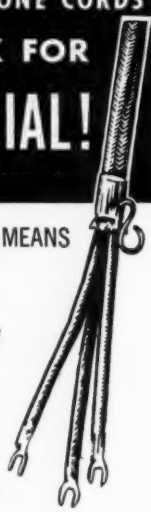

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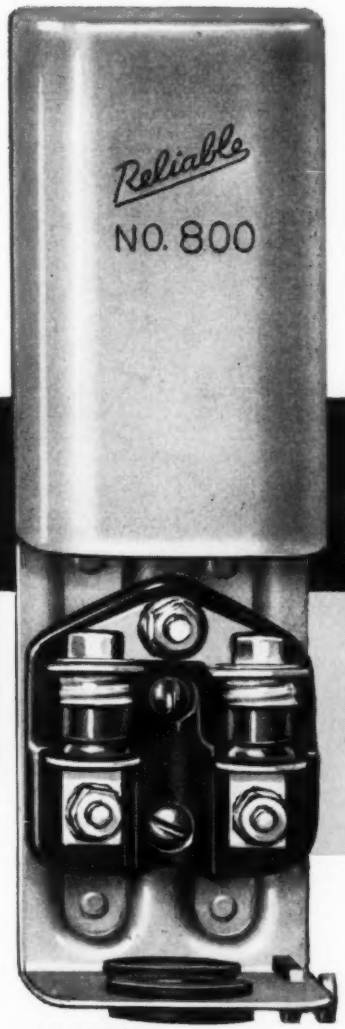

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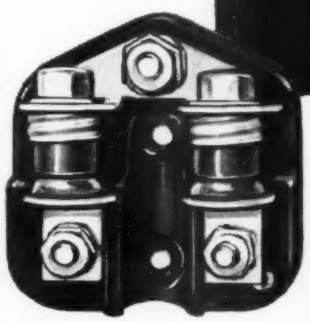

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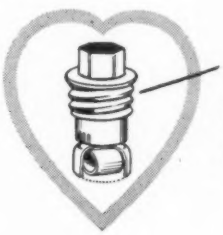

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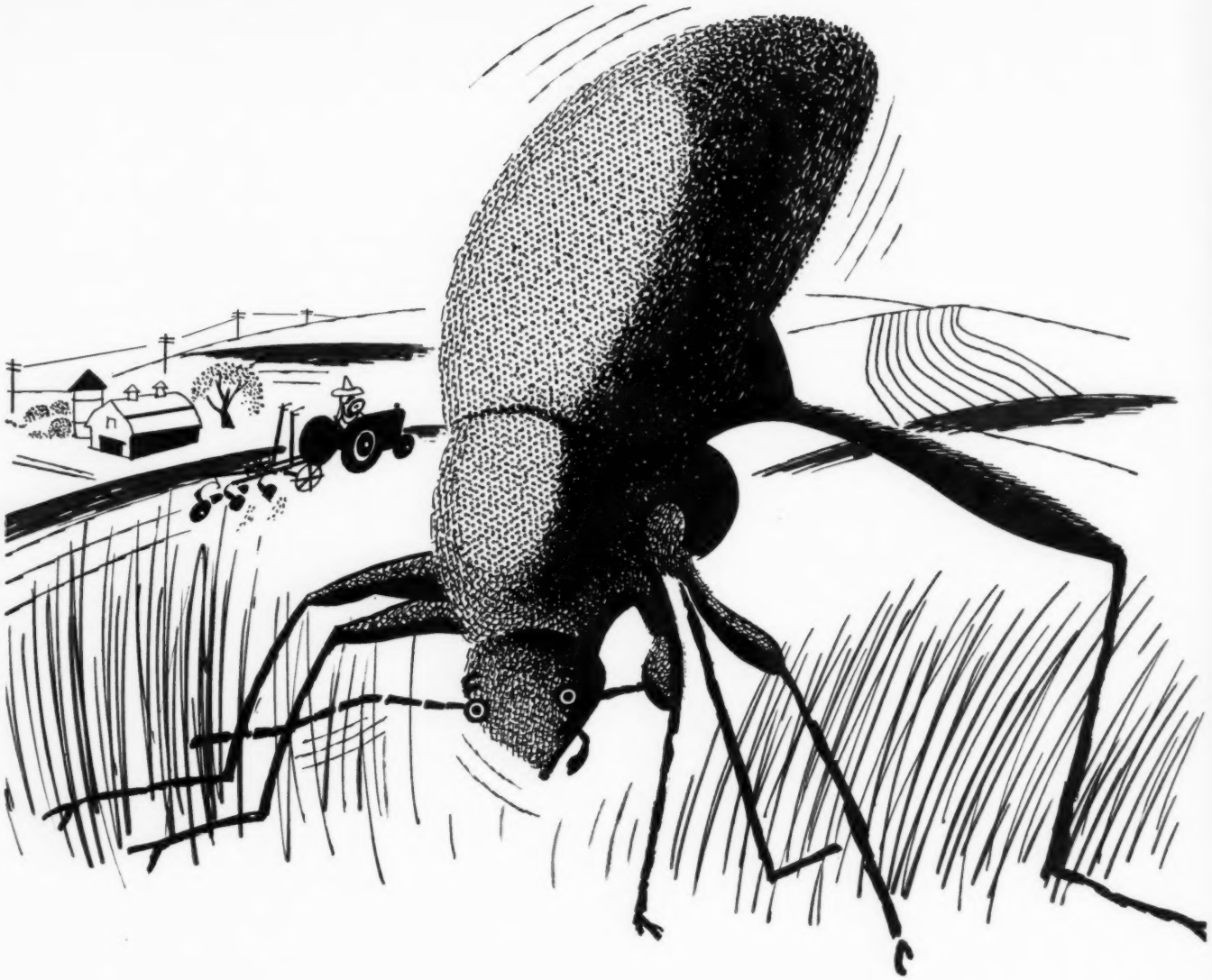

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